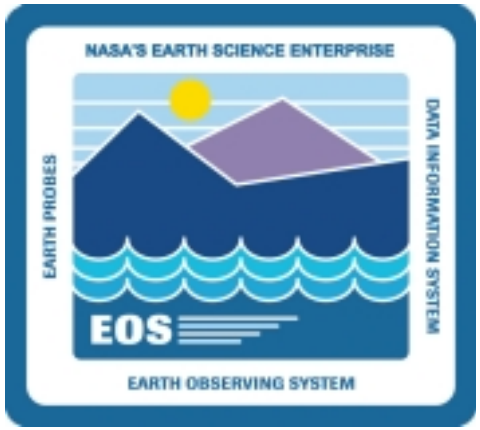
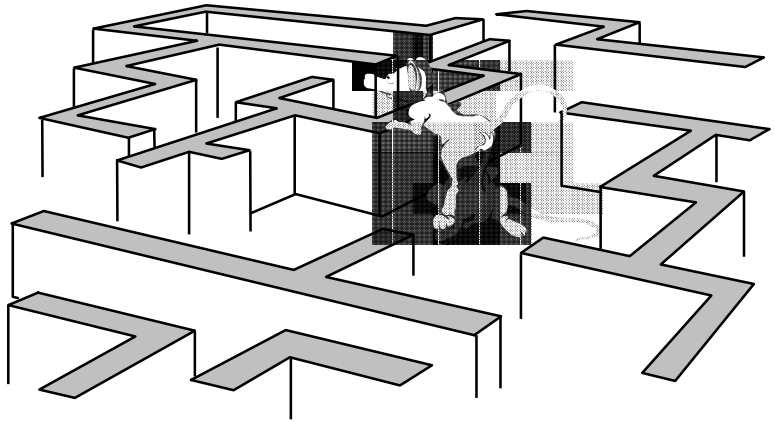


SYSTEM TROUBLESHOOTING

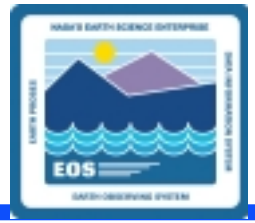
ECS Release 5B Training

Overview of Lesson

- **Introduction**
- **System Troubleshooting Topics**
  - **Configuration Parameters**
  - **System Performance Monitoring**
  - **Problem Analysis/Troubleshooting**
  - **Trouble Ticket (TT) Administration**
- **Practical Exercise**



Objectives

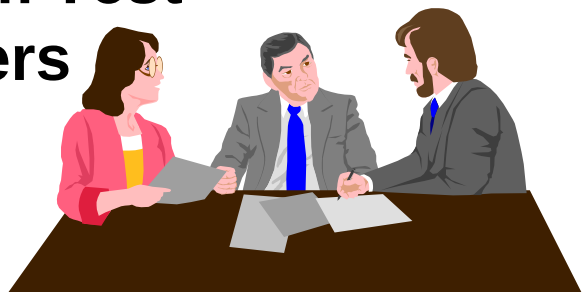


- **Overall: Proficiency in methodology and procedures for system troubleshooting for ECS**
  - **Describe role of configuration parameters in system operation and troubleshooting**
  - **Conduct system performance monitoring**
  - **Perform COTS problem analysis and troubleshooting**
  - **Prepare Hardware Maintenance Work Order**
  - **Perform Failover/Switchover**
  - **Perform general checkout and diagnosis of failures related to operations with ECS custom software**
  - **Set up trouble ticket users and configuration**

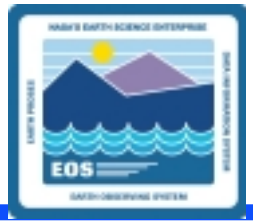
Importance

Lesson helps prepare several ECS roles for effective system troubleshooting, maintenance, and problem resolution:

- **DAAC Computer Operator, System Administrator, and Maintenance Coordinator**
- **SOS/SEO System Administrator, System Engineer, System Test Engineer, and Software Maintenance Engineer**
- **DAAC System Engineers, System Test Engineers, Maintenance Engineers**



Configuration Parameters

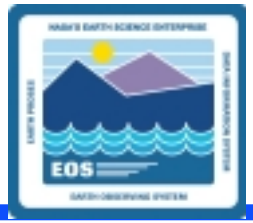


- **Default settings may or may not be optimal for local operations**
- **Changing parameter settings**
  - **May require coordination with Configuration Management Administrator**
  - **Some parameters accessible on GUIs**
  - **Some parameters changed by editing configuration files**
  - **Some parameters stored in databases**
- **Configuration Registry (Release 5B, 2nd delivery)**
  - **Script loads values from configuration files**
  - **GUI for display and modification of parameters**
  - **Move (re-name) configuration files so ECS servers obtain needed parameters from Registry Server when starting**

System Performance Monitoring

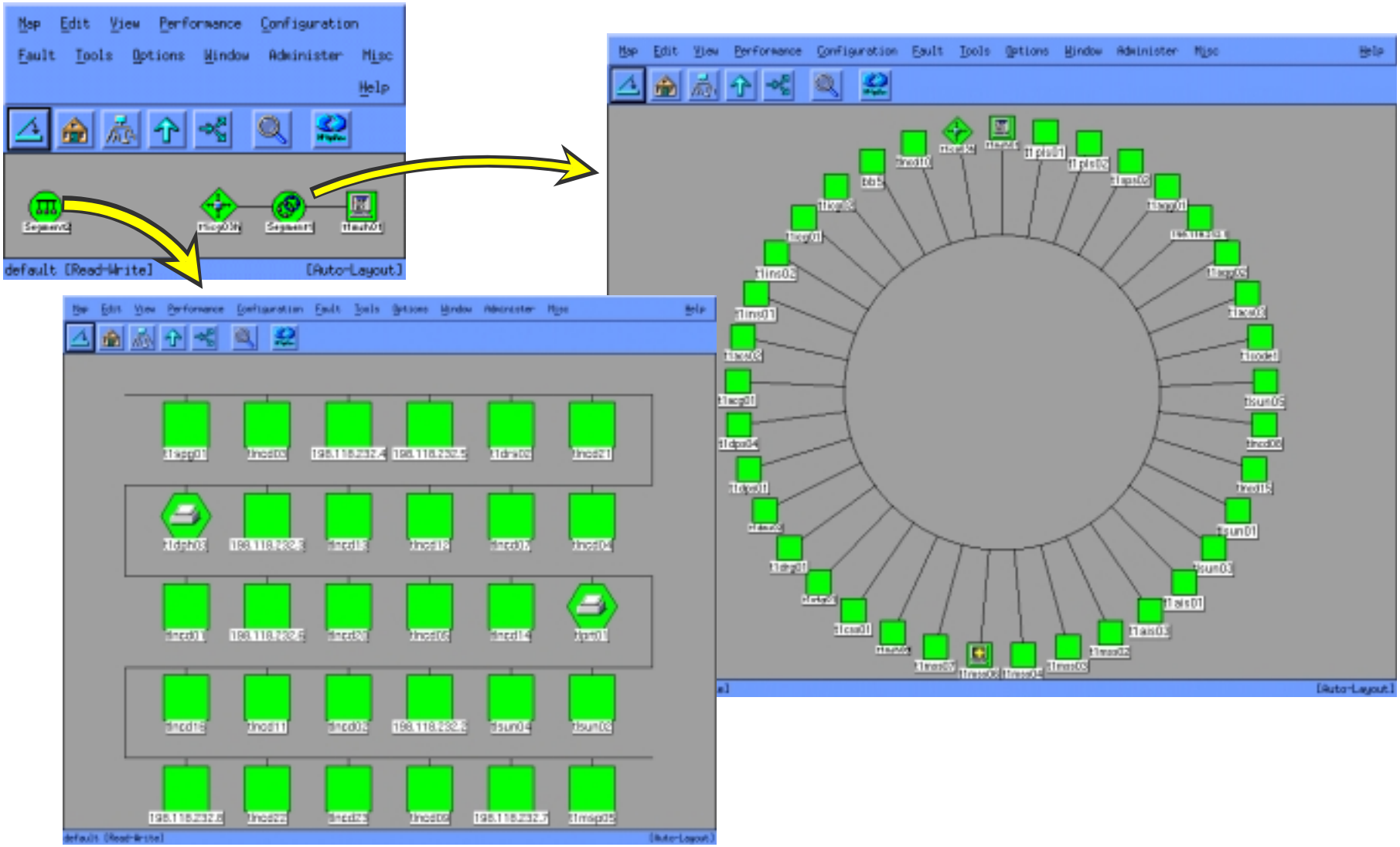
- **Maintaining Operational Readiness**
  - **System operators -- close monitoring of progress and status**
    - **Notice any serious degradation of system performance**
  - **System administrators and system maintenance personnel -- monitor overall system functions and performance**
    - **Administrative and maintenance oversight of system**
    - **Watch for system problem alerts**
    - **Use monitoring tools to create special monitoring capabilities**
    - **Check for notification of system events**

Checking Network Health & Status

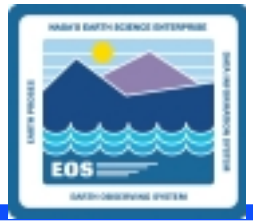


- **HP Open View system management tool**
  - **Site-wide view of network and system resources**
  - **Status information on resources**
  - **Event notifications and background information**
  - **Operator interface for starting servers and managing resources**
- **HP Open View monitoring capabilities**
  - **Network map showing elements and services with color alerts to indicate problems**
  - **Indication of network and server status and changes**
  - **Creation of submaps for special monitoring**
  - **Event notifications**

HP Open View Network Maps



Network Discovery and Status



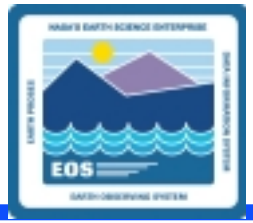
- **HP OpenView discovers and maps network and its elements**
  - **Configured to display status**
  - **Network maps set for read-write**
  - **IP Map application enabled**
- **HP OpenView Network Node Manager start-up**
  - **Network management processes must be running**
    - **ovwdb, trapd, ovtopmd, ovactiond, snmpCollect, netmon**
  - **Check using the command: ovstatus**
- **Status categories**
  - **Administrative: Not propagated**
  - **Operational: Propagated from child to parent**
- **Compound Status: How status is propagated**

HP OpenView Default Status Colors

Status Condition	Symbol Color	Connection Color
Unmanaged (a)	Off-white	Black
Testing (a)	Salmon	Salmon
Restricted (a)	Tan	Tan
Disabled (a)	Dark Brown	Dark Brown
Unknown (o)	Blue	Black
Normal (o)	Green	Green
Warning (o)	Cyan	Cyan
Minor/Marginal (o)	Yellow	Yellow
Major (o)	Orange	Orange
Critical (o)	Red	Red

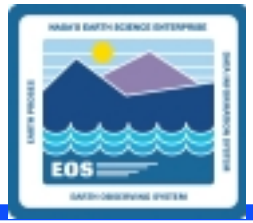
(a) Administrative Status (o) Operational Status

Monitoring: Check for Color Alerts



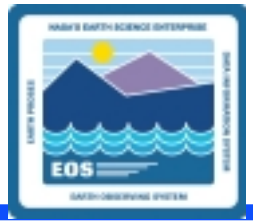
- **Open a map**
- **Compound Status set to default**
- **Color indicates operational status**
- **Follow color indication for abnormal status to isolate problem**

Monitoring: Check for New Nodes



- **IP Map application enabled**
  - **Automatic discovery of IP-addressable nodes**
  - **Creation of object for each node**
  - **Creation and display of symbols**
  - **Creation of hierarchy of submaps**
    - **Internet submap**
    - **Network submaps**
    - **Segment submaps**
    - **Node submaps**
- **Autolayout**
  - **Enabled: Symbols on map**
  - **Disabled: Symbols in New Object Holding Area**

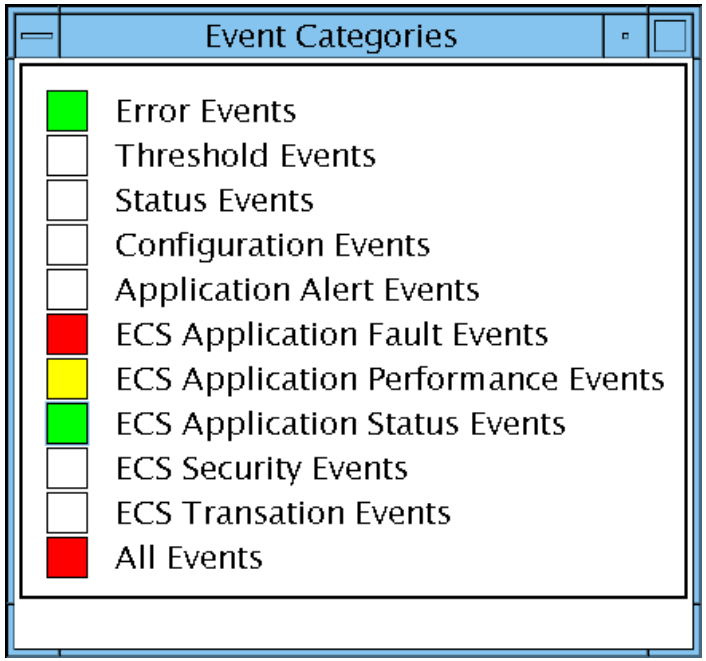
Monitoring: Special Submaps



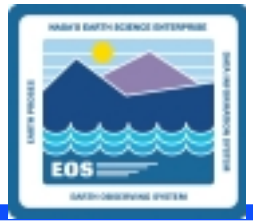
- **Logical *vs*. physical organization**
- **Create map tailored for special monitoring purpose**
- **Two types and access options**
  - **Independent of hierarchy, opened by menu and dialog**
  - **Child of a parent object, accessible through symbol on parent**

Monitoring: Event Notifications

- **Event: a change on the network**
  - **Registers in appropriate Events Browser window**
  - **Button color change in Event Categories window**
- **Event Categories**
  - **Error events**
  - **Threshold events**
  - **Status events**
  - **Configuration events**
  - **Application alert events**
  - **ECS events (various)**
  - **All events**

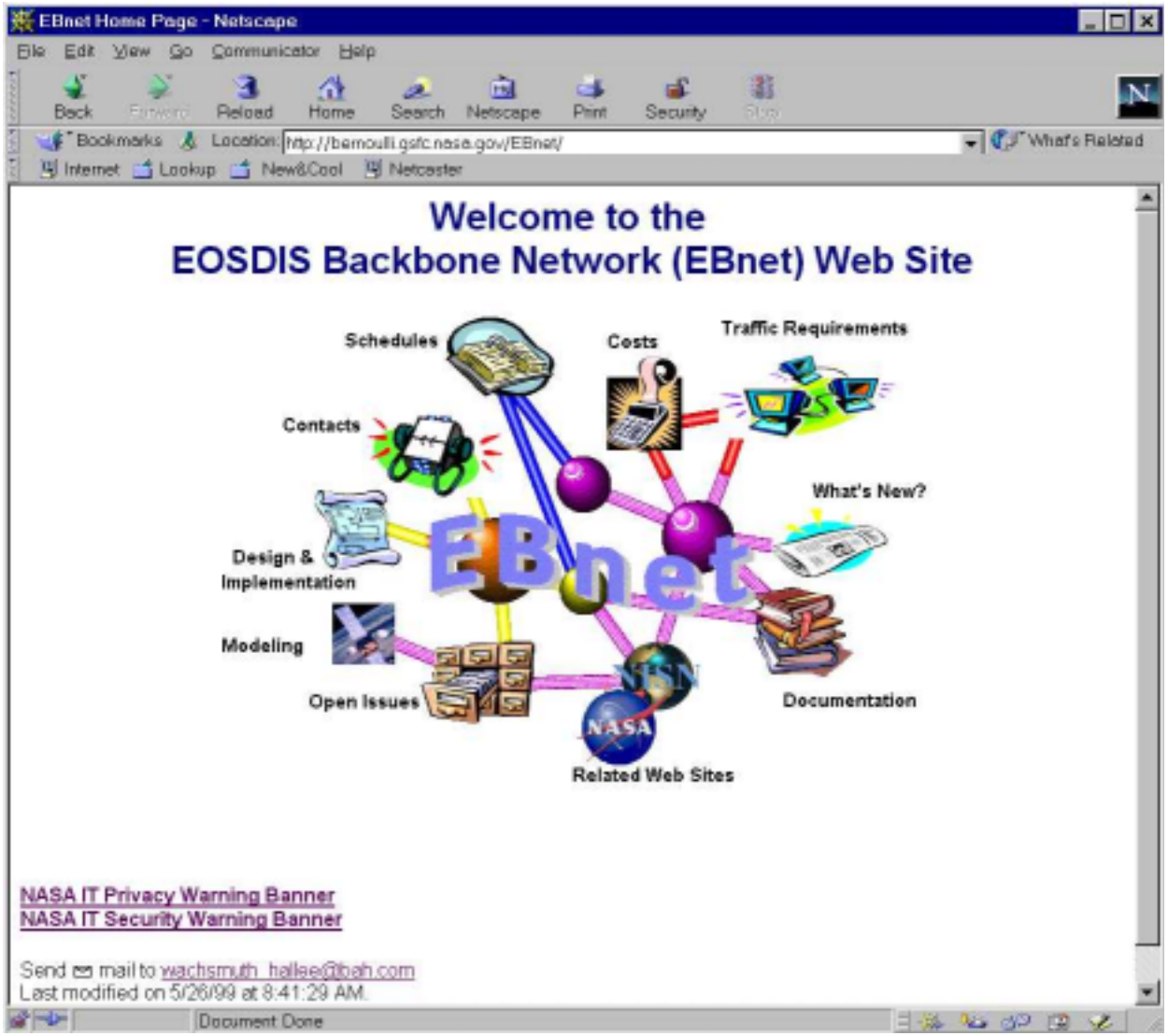


Accessing the EBnet Web Page

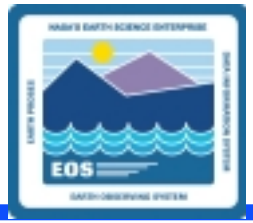


- **EBnet is a WAN for ECS connectivity**
  - **DAACs, EDOS, and other EOSDIS sites**
  - **Interface to NASA Internet (NI)**
  - **Transports spacecraft command, control, and science data**
  - **Transports mission critical data**
  - **Transports science instrument data and processed data**
  - **Supports internal EOSDIS communications**
  - **Interface to Exchange LANs**
- **EBnet home page URL**
  - **http://bernoulli.gsfc.nasa.gov/EBnet/**

EBnet Home Page

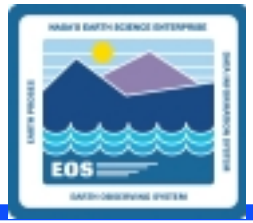


Analysis/Troubleshooting: System



- **COTS product alerts and warnings**
  (e.g., HP OpenView, AutoSys/Xpert)
- **COTS product error messages and event logs**
  (e.g., HP OpenView)
- **ECS Custom Software Error Messages**
  - **Listed in 609-CD-510-002**

Systematic Troubleshooting

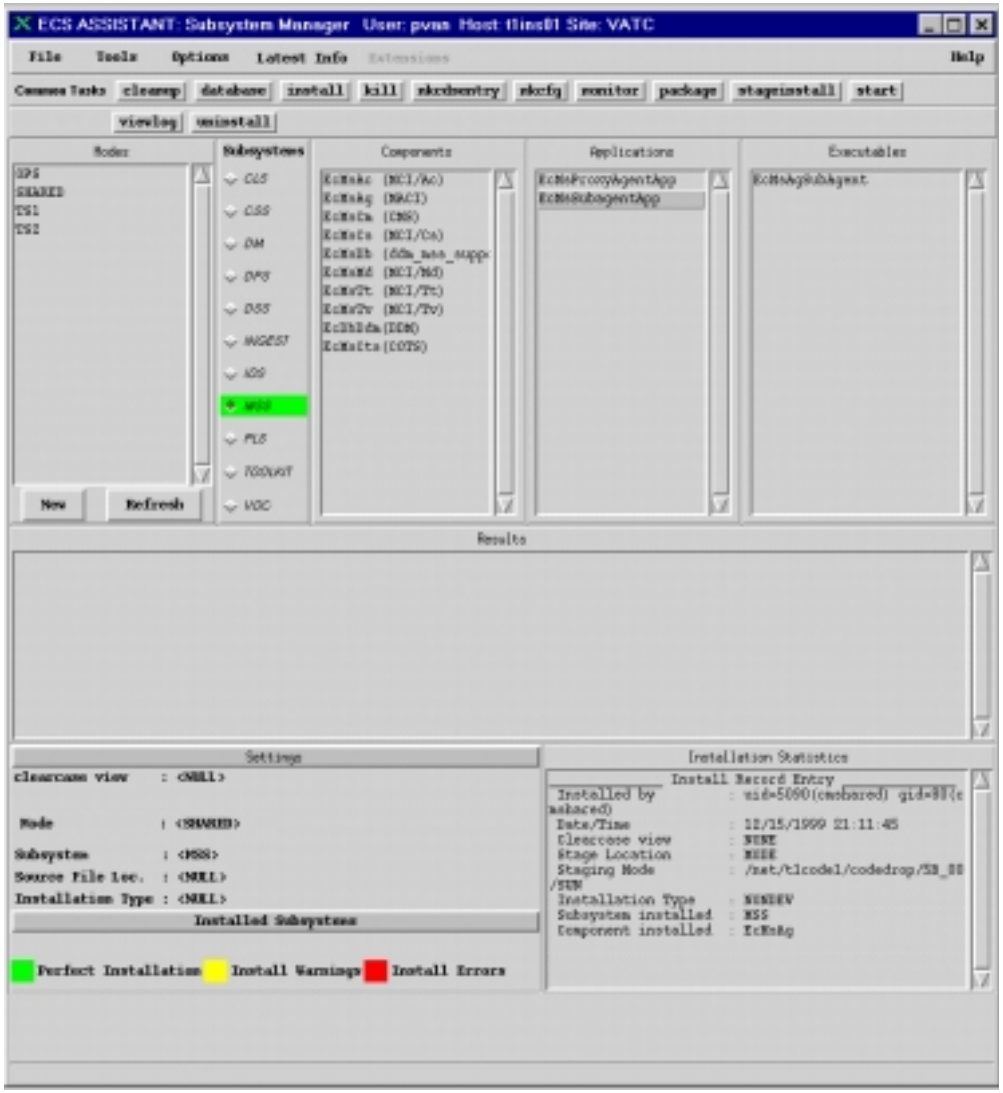


- **Thorough documentation of the problem**
  - **Date/time of problem occurrence**
  - **Hardware/software**
  - **Initiating conditions**
  - **Symptoms, including log entries and messages on GUIs**
- **Verification**
  - **Identify/review relevant publications (e.g., COTS product manuals, ECS tools and procedures manuals)**
  - **Replicate problem**
- **Identification**
  - **Review product/subsystem logs**
  - **Review ECS error messages**
- **Analysis**
  - **Detailed event review (e.g., HP OpenView Event Browser)**
  - **Troubleshooting procedures**
  - **Determination of cause/action**

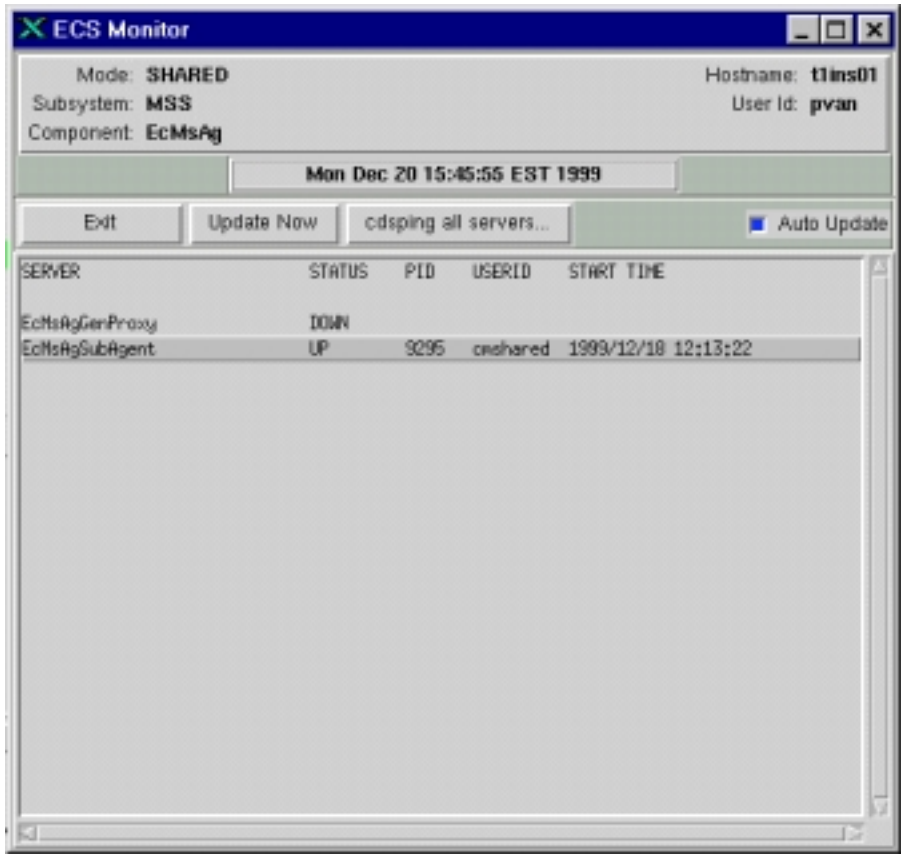
ECS Assistant vs. HP OpenView

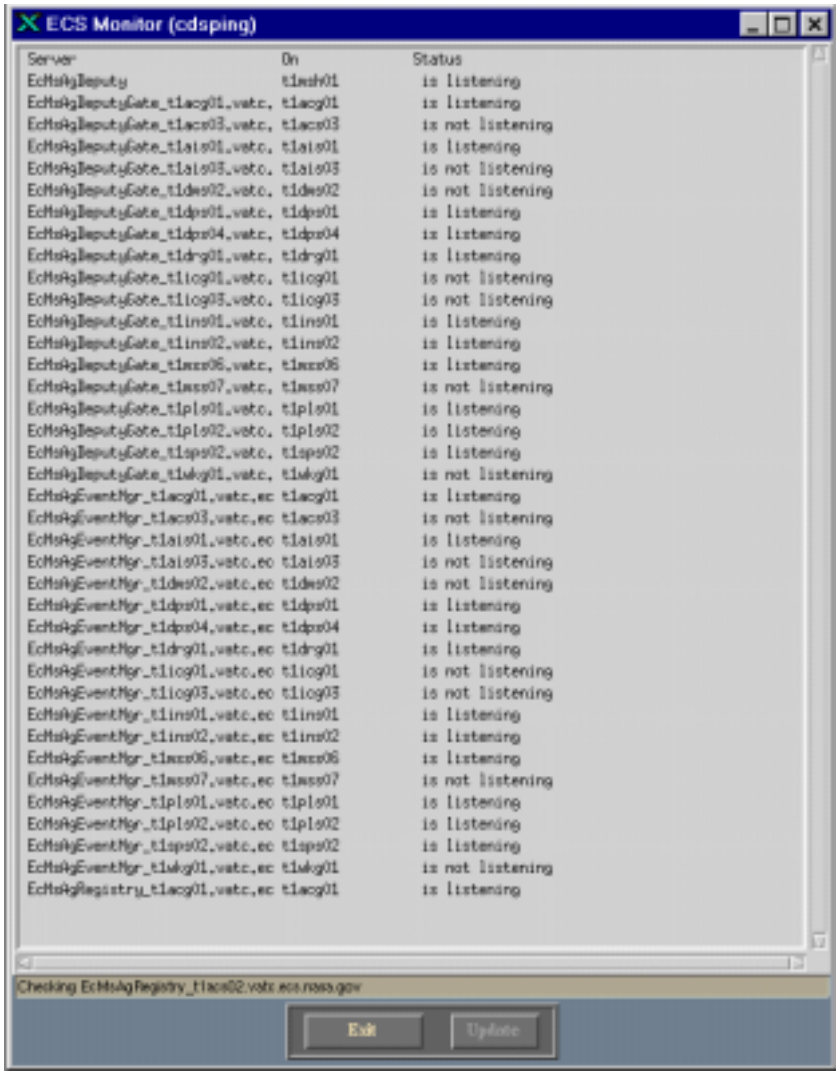
- **HP OpenView**
  - **Dynamic**
  - **Real-time**
  - **SNMP**
  - **Only one instance at a time can be used to manage system, and ECS implementation is somewhat limited**
- **ECS Assistant**
  - **Independently available at each host**
  - **Limited Monitoring (i.e., server status)**

ECS Assistant Manager Windows

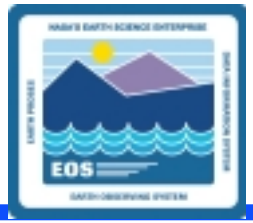


ECS Assistant Monitor Windows



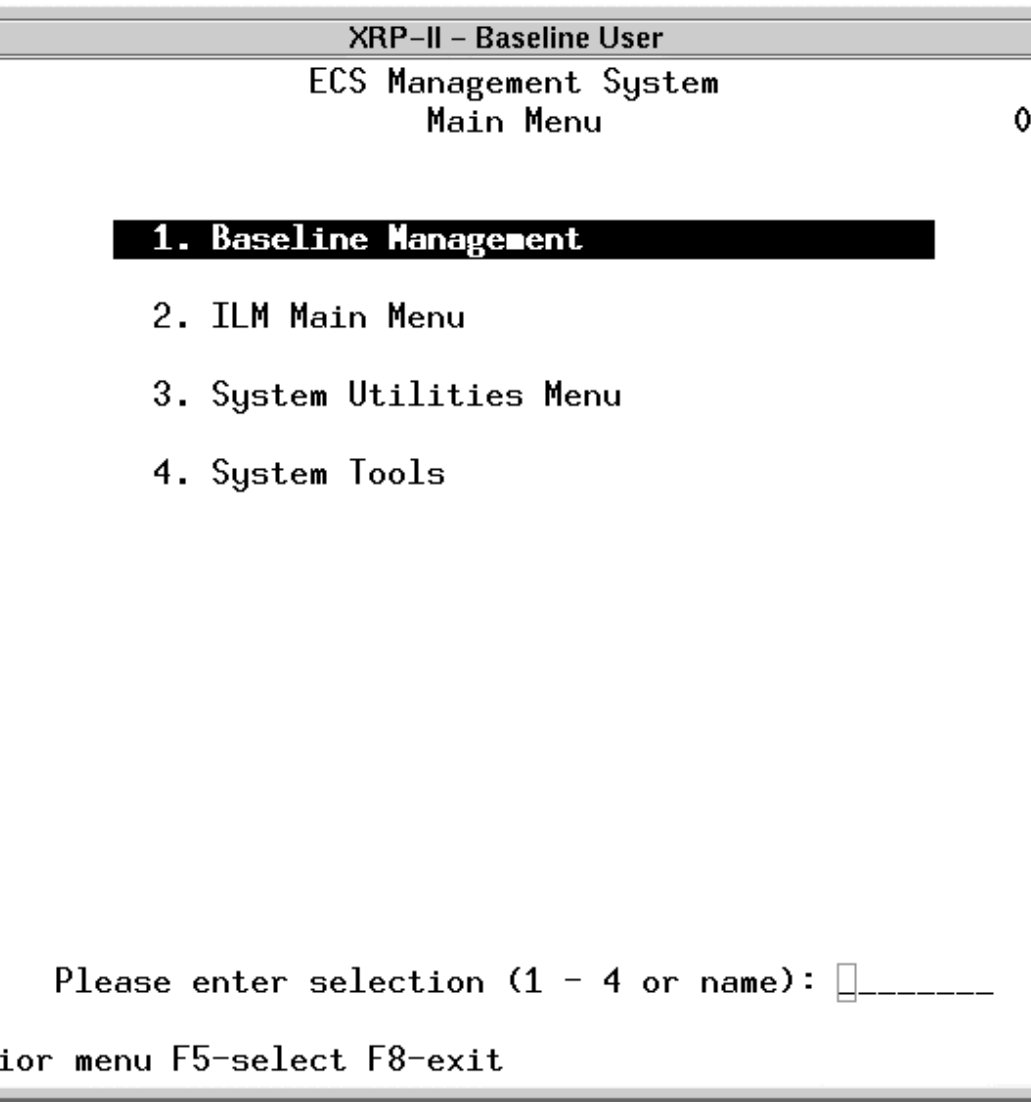


Analysis/Troubleshooting: Hardware

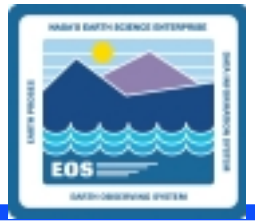


- ECS hardware is COTS
- System troubleshooting principles apply
- HP OpenView for quick assessment of status
- HP OpenView Event Log Browser for event sequence
- Initial troubleshooting
  - Review error message against hardware operator manual
  - Verify connections (power, network, interface cables)
  - Run internal systems and/or network diagnostics
  - Review system logs for evidence of previous problems
  - Attempt system reboot
  - If problem is hardware, report it to the DAAC Maintenance Coordinator, who prepares a maintenance Work Order using ILM software

XRP-II Main Screen

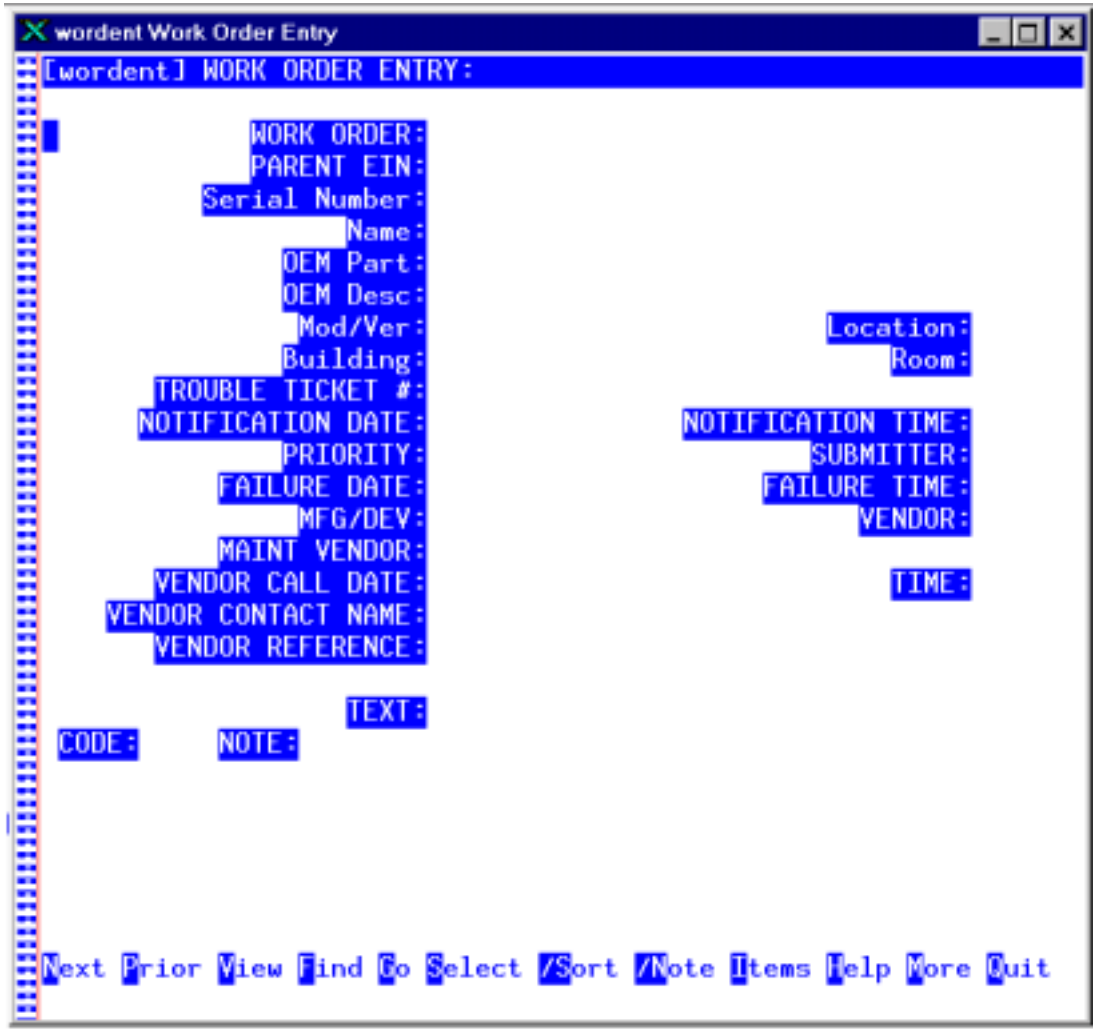


XRP-II ILM Hierarchical Menu Structure

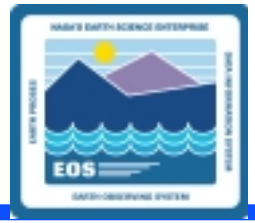


- **Main**
  - **Baseline Management**
    - Maintenance Menu
      - Maintenance Codes
      - Maintenance Contracts
      - Authorized Employees
      - Work Order Entry
      - Work Order Modification
      - Preventative Maintenance Items
      - Work Order Parts Replacement History
      - Maintenance Work Order Reports
      - Work Order Status Reports
  - **ILM Main Menu**
    - EIN Transactions
      - EIN Installation
      - EIN Shipment
      - EIN Transfer
      - EIN Archive
      - EIN Relocation
      - Inventory Transaction Query
    - Inventory Ordering Menu
      - Order Point Parameters Manager
      - Generate Order Point Recommendations
      - Recommended Orders Manager
      - Transfer Order Point Orders
      - Consumable Inventory Query
      - Spares Inventory Query
      - Transfer Consumable & Spare Mat'l
    - ILM Master Menu
      - Employee Manager
      - Assembly Manager
      - System Parameters Manager
      - Inventory Location Manager
      - Buyer Manager
      - Hardware/Software Codes
      - Status Code Manager
      - Report Number
      - Export Inventory Data
      - Transaction Log
      - Transaction Archive
      - OEM Part Numbers
      - Shipment Number Manager
      - Carriers
  - **System Utilities Menu**
    - EIN Menu
      - EIN Entry
      - EIN Manager
      - EIN Structure Manager
      - EIN Inventory Query
    - ILM Report Menu
      - ILM Inventory Reports
      - EIN Structure Reports
      - Install/Receipt Report
      - EIN Shipment Reports
      - Transaction History Reports
      - PO Receipt Reports
      - Installation Summary Reports
    - PO/Receiving Menu
      - Material Requisition Manager
      - Material Requisition Master
      - Purchase Order Entry
      - Purchase Order Modification
      - Purchase Order Print
      - Purchase Order Status
      - Receipt Confirmation
      - Print Receipt Reports
      - Purchase Order Processing
      - Vendor Master Manager
  - **System Tools**

ILM Work Order Entry Screen



Hardware Problems: (Continued)



- **Difficult problems may require team attack by Maintenance Coordinator, System Administrator, and Network Administrator:**
  - **specific troubleshooting procedures described in COTS hardware manuals**
  - **non-replacement intervention (e.g., adjustment)**
  - **replace hardware with maintenance spare**
    - **locally purchased (non-stocked) item**
    - **installed spares (e.g., RAID storage, power supplies, network cards, tape drives)**

Hardware Problems: (Continued)

- **If no resolution with local staff, maintenance support contractor may be called**
  - **Update ILM maintenance record with problem data, support provider data**
  - **Call technical support center**
  - **Facilitate site access by the technician**
  - **Update ILM record with data on the service call**
  - **If a part is replaced, additional data for ILM record**
    - **Part number of new item**
    - **Serial numbers (new and old)**
    - **Equipment Identification Number (EIN) of new item**
    - **Model number (Note: may require CCR)**
    - **Name of item replaced**

ILM Work Order Modification

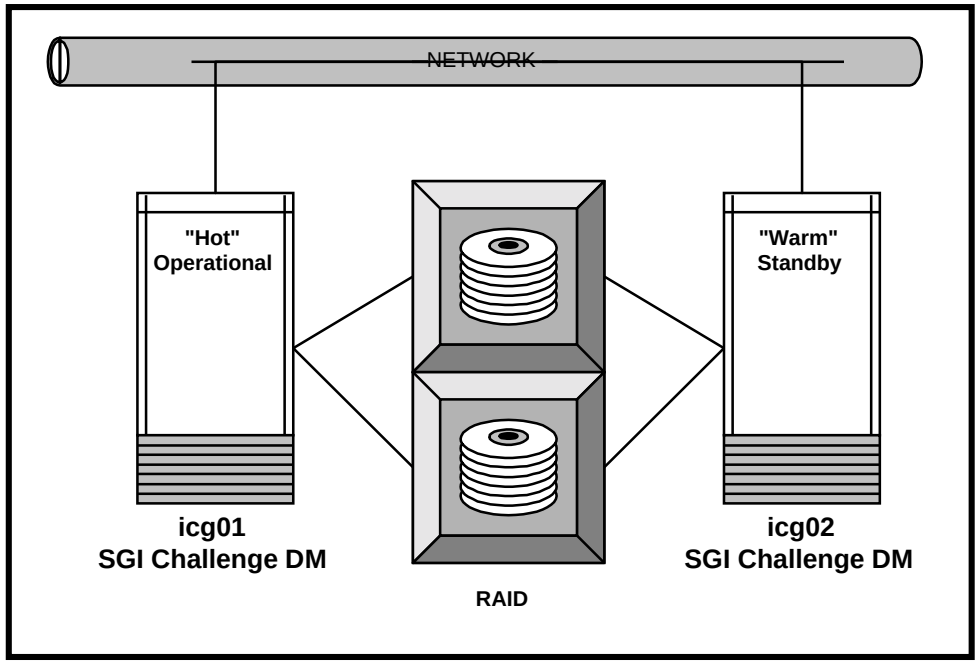
- **Completion of Work Order Entry copies active children of parent EIN into the work order**
- **Use Work Order Modification screen to enter down times, and vendor times and notes**
- **From Work Order Modification screen, Items Page is used to record details**
  - **Which item (or items) failed**
  - **New replacement items**
  - **Notes concerning the failure**

Non-Standard Hardware Support

- **For especially difficult cases, or if technical support is unsatisfactory**
  - **Escalation of the problem**
    - **Obtain attention of support contractor management**
    - **Call technical support center**
  - **Time and Material (T&M) Support**
    - **Last resort for mission-critical repairs**

Failover/Switchover

- **Hardware consists of one pair of SGI servers (e.g., ICL - Ingest Server)**
- **One server in the pair acts as the “hot” server, the other is a “warm” standby backup**
- **RAID device between the two servers is Dual Ported to both machines (each machine “sees” the entire RAID); a “virtual IP” is established**



Failover Steps
(assumes warm backup already running DCE, operating system)

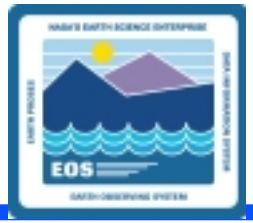
1. Detect Failure on primary (e.g., xxicg01)
2. Confirm Failure on primary (e.g., xxicg01)
3. Shutdown primary (e.g., xxicg01)
4. Change ownership of Disk xlv objects from primary to backup (e.g., xxicg02)
5. Re-build xlv objects on backup (e.g., xxicg02)
6. Mount xlv objects (filesystems) on backup (e.g., xxicg02)
7. Export filesystems
8. Turn on IP alias to backup (e.g., xxicg02)
9. Flush EBnet and local Router table

Failback procedure reverts to primary

Preventive Maintenance

- **Elements that may require PM are the STK robot, tape drives, stackers, printers**
  - **Scheduled by local Maintenance Coordinator**
  - **Coordinated with maintenance organization and using organization**
    - **Scheduled to be performed by maintenance organization and to coincide with any corrective maintenance if possible**
    - **Scheduled to minimize operational impact**
  - **Documented using ILM Preventive Maintenance record**

Troubleshooting COTS Software



Issues

- **Software use licenses**
- **Obtaining telephone assistance**
- **Obtaining software patches**
- **Obtaining software upgrades**

Vendor support contracts

- **First year warranty**
- **Subsequent years contracts**
- **Database at ILS office**
- **Contact ILS Support**
  - **E-mail: ilsmaint@eos.hitc.com**
  - **Telephone: 1-800-ECS-DATA (327-3282) Option #3, Ext. 0726**

COTS Software Licenses

Maintained in a property database by ECS Property Administrator

Major COTS Software License Restrictions

Software	Restriction
HP OpenView	One site license, unlimited users (viewers)
AutoSys	Only one instance at a time may be active
ClearCase®	Five users concurrently
DDTS	Virtually unlimited (10,000 users)

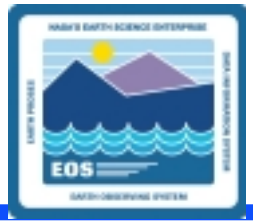
COTS Software Installation

- **COTS software is installed with any appropriate ECS customization**
- **Final Version Description Document (VDD) available**
- **Any residual media and commercial documentation should be protected (e.g., stored in locked cabinet, with access controlled by on-duty Operations Coordinator)**

COTS Software Support

- **Systematic initial troubleshooting**
  - **Software Event Browser (e.g., HP OpenView Event Browser) to review event sequence**
  - **Review error messages, prepare Trouble Ticket (TT)**
  - **Review system logs for previous occurrences**
  - **Attempt software reload**
  - **Report to Maintenance Coordinator (forward TT)**
- **Additional troubleshooting**
  - **Procedures in COTS manuals**
  - **Vendor site on World Wide Web**
  - **Software diagnostics**
  - **Local procedures**
  - **Adjustment of tunable parameters**

COTS Software Support (Cont.)

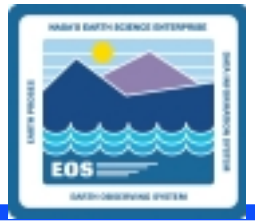


- **Organize available data, update TT**
  - **Locate contact information for software vendor technical support center/help desk (telephone number, name, authorization code)**
- **Contact technical support center/help desk**
  - **Provide background data**
  - **Obtain case reference number**
  - **Update TT**
  - **Notify originator of the problem that help is initiated**
- **Coordinate with vendor and CM, update TT**
  - **Work with technical support center/help desk (e.g., troubleshooting, patch, work-around)**
  - **CCB authorization required for patch**

COTS Software Support (Cont.)

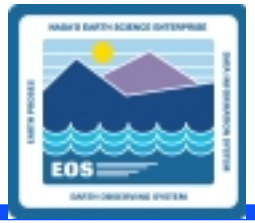
- **Escalation may be required, e.g., if there is:**
  - **Lack of timely solution**
  - **Unsatisfactory performance of technical support center/help desk**
- **Notify SOS/SEO**
  - **Senior Systems Engineers**
  - **ILS Logistics Engineer coordination for escalation within vendor organization**

Troubleshooting of Custom Software



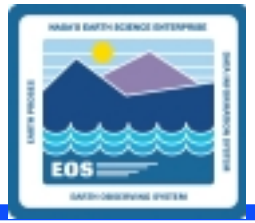
- Code maintained at ECS Development Facility
- ClearCase® for library storage and maintenance
- Sources of maintenance changes
  - M &O CCB directives
  - Site-level CCB directives
  - Developer modifications or upgrades
  - Trouble Tickets

Implementation of Modifications



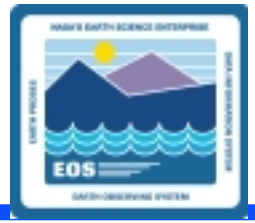
- Responsible Engineer (RE) selected by each ECS organization
- SOS RE establishes set of CCRs for build
- Site/Center RE determines site-unique extensions
- System and center REs establish schedules for implementation, integration, and test
- CM maintains CCR lists and schedule
- CM maintains VDD
- RE or team for CCR at EDF obtains source code/files, implements change, performs programmer testing, updates documentation

Custom Software Support



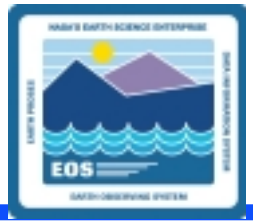
- **Science software maintenance not responsibility of ECS on-site maintenance engineers**
- **Sources of Trouble Tickets for custom software**
  - **Anomalies**
  - **Apparent incorrect execution by software**
  - **Inefficiencies**
  - **Sub-optimal use of system resources**
  - **TTs may be submitted by users, operators, customers, analysts, maintenance personnel, management**
  - **TTs capture supporting information and data on problem**

Custom Software Support (Cont.)



- **Troubleshooting is ad hoc, but systematic**
- **For problem caused by non-ECS element, TT and data are provided to maintainer at that element**

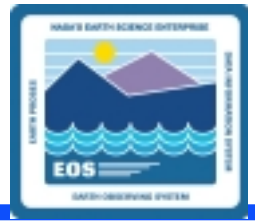
General ECS Troubleshooting



(Note: Lesson Guide has introduction and flow charts, followed by specific procedures)

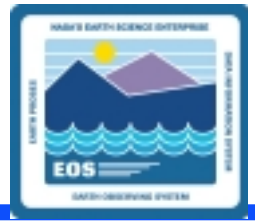
- **Source of problem likely to be specific operations; first chart provides entry to appropriate flow chart**
- **Top-level chart provides entry into troubleshooting flow charts and procedures**
- **Flow charts for problems in basic operational capabilities:**
  - **Server status check**
  - **Starting servers from HP OpenView**
  - **Connectivity and DCE**
  - **Database access**
  - **File access**
  - **Registering subscriptions**

General ECS Troubleshooting (Cont.)



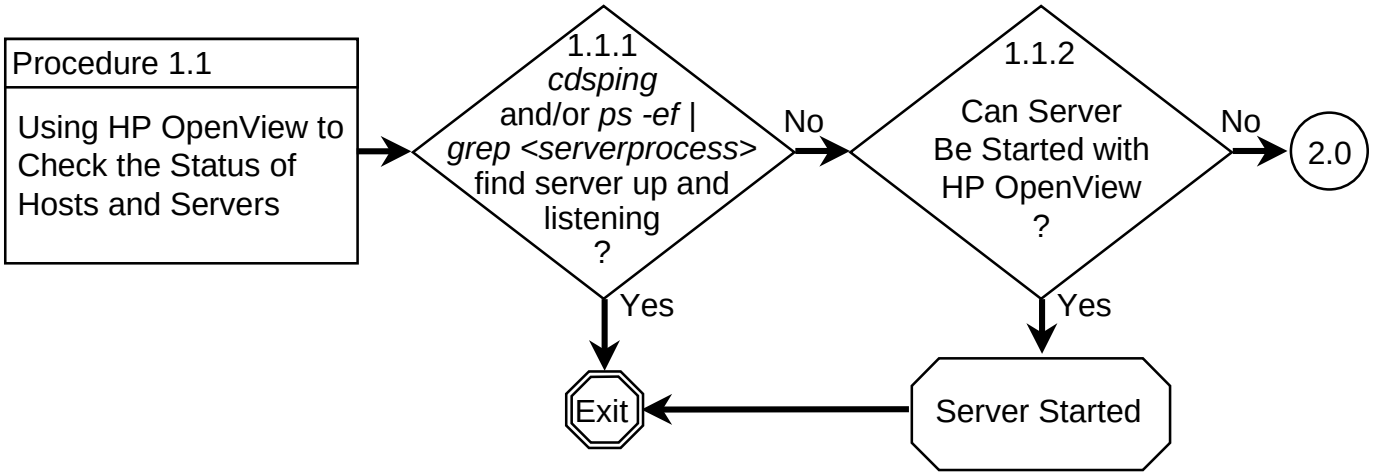
- **Flow charts for problems with basic capabilities (Cont.)**
  - **Granule insertion and storage of associated metadata**
  - **Acquiring data from the archive**
  - **Ingest functions**
  - **PGE registration, Production Request creation, creation and activation of a Production Plan**
  - **Quality Assessment**
  - **ESDTs installed and collections mapped, insertion and acquiring of a Delivered Algorithm Package (DAP), and SSI&T functions**
  - **Data search and order**
  - **Data distribution, including FTPpush and FTPpull**
  - **(EDC only) Functions associated with Data Acquisition Request**

Troubleshooting: Top-Level Problem Categories

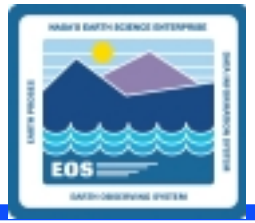


1.0 Server Status Check See Procedure 1.1	2.0 Server Starting Problems See Procedure 2.1	3.0 Connectivity/DCE Problems See Procedure 3.1	4.0 Database Access Problems See Procedure 4.1
5.0 File Access Problems See Procedure 5.1	6.0 Subscription Problems See Procedure 6.1	7.0 Granule Insertion Problems See Procedure 7.1	8.0 Acquire Problems See Procedure 8.1
9.0 Ingest Problems See Procedure 9.1	10.0 Planning and Data Processing Problems See Procedure 10.1	11.0 Quality Assessment Problems See Procedure 11.1	12.0 Problems with ESDTs, DAP Insertion, SSI&T See Procedure 12.1
13.0 Problems with Data Search and Order See Procedure 13.1	14.0 Data Distribution Problems See Procedure 14.1	15.0 Problems with Submission of an ASTER Data Acquisition Request (EDC Only) See Procedure 15.1	

1.0: Server Status Check

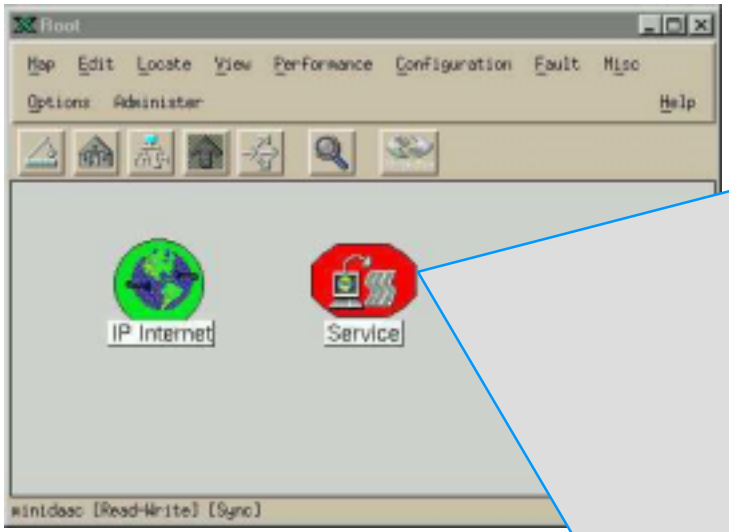


Checking Server Status

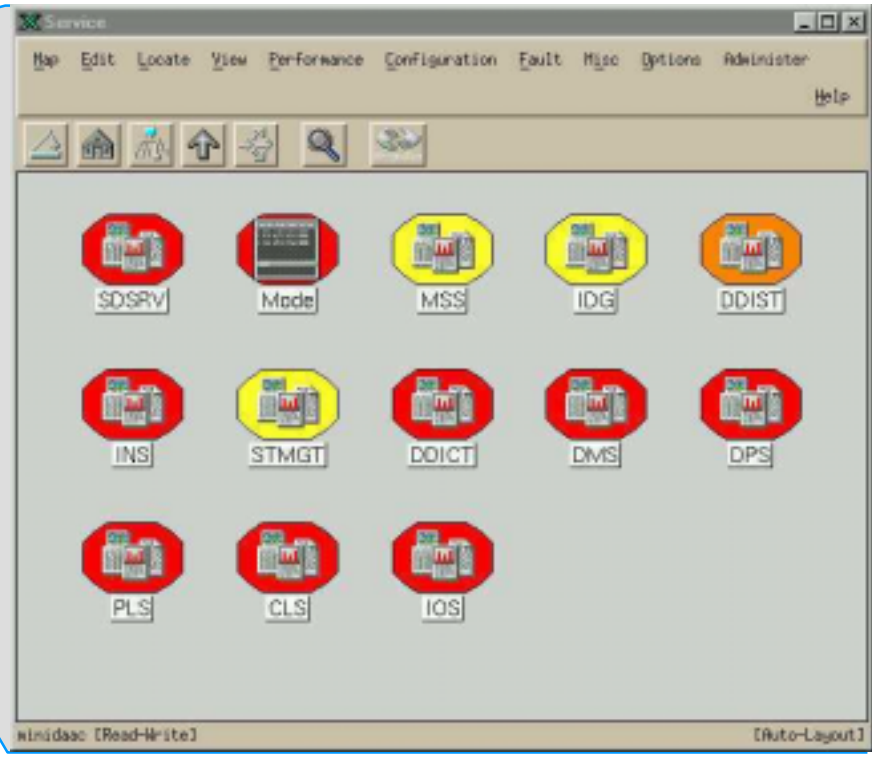


- **ECS functions depend on the involved software servers being in an “up” status and listening**
- **Basic first check in troubleshooting a problem is typically to ensure that the necessary servers are up and listening**
- **HP OpenView provides real-time, dynamically updated displays of server and system status, as well as the capability to start and stop servers**

HP OpenView: System/Server Checks

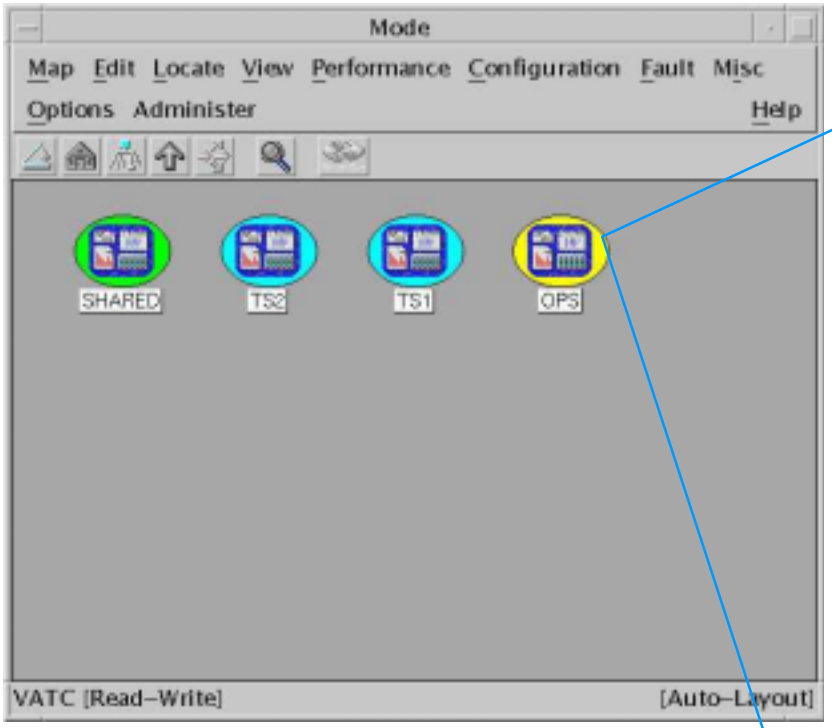


Root Window

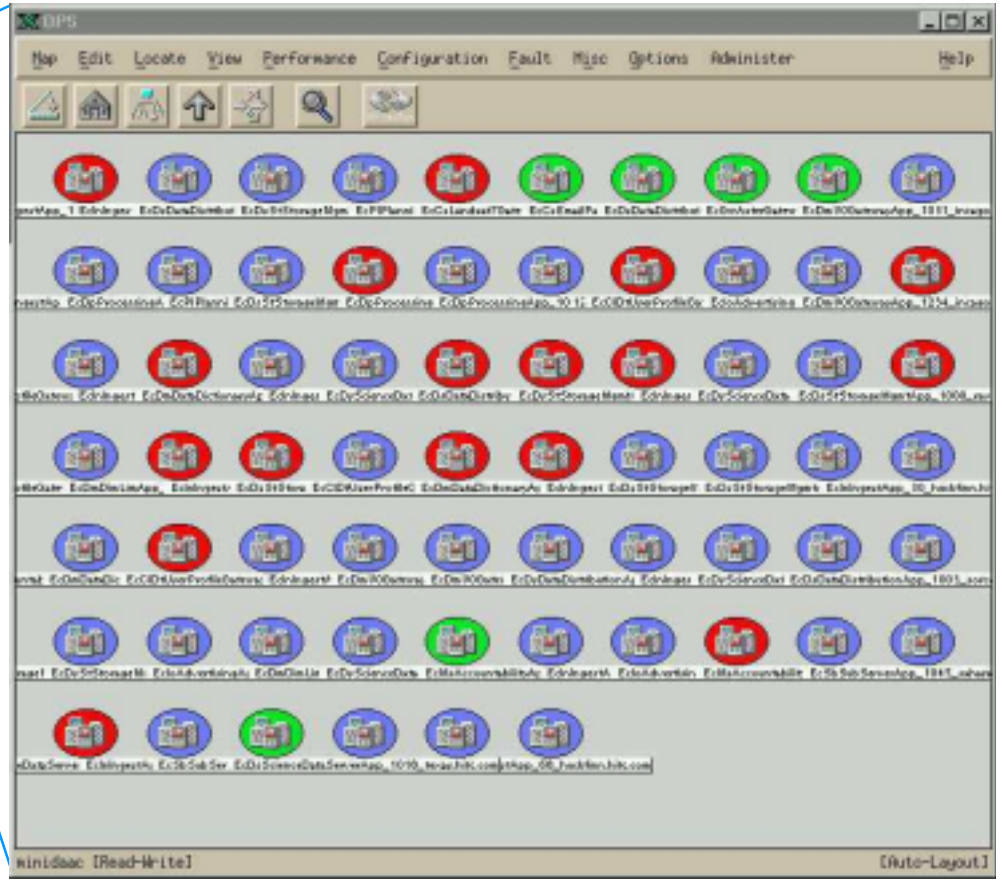


Service Submap Window

HPOV: System/Server Checks (Cont.)

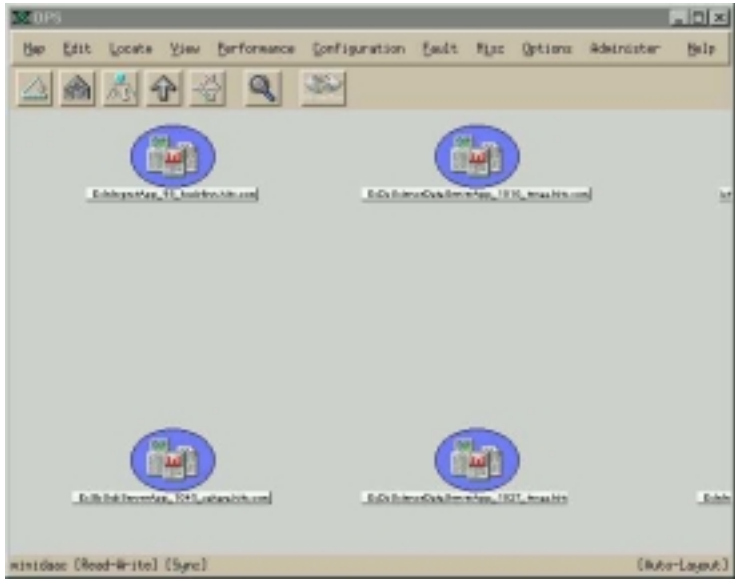


Mode Submap Window

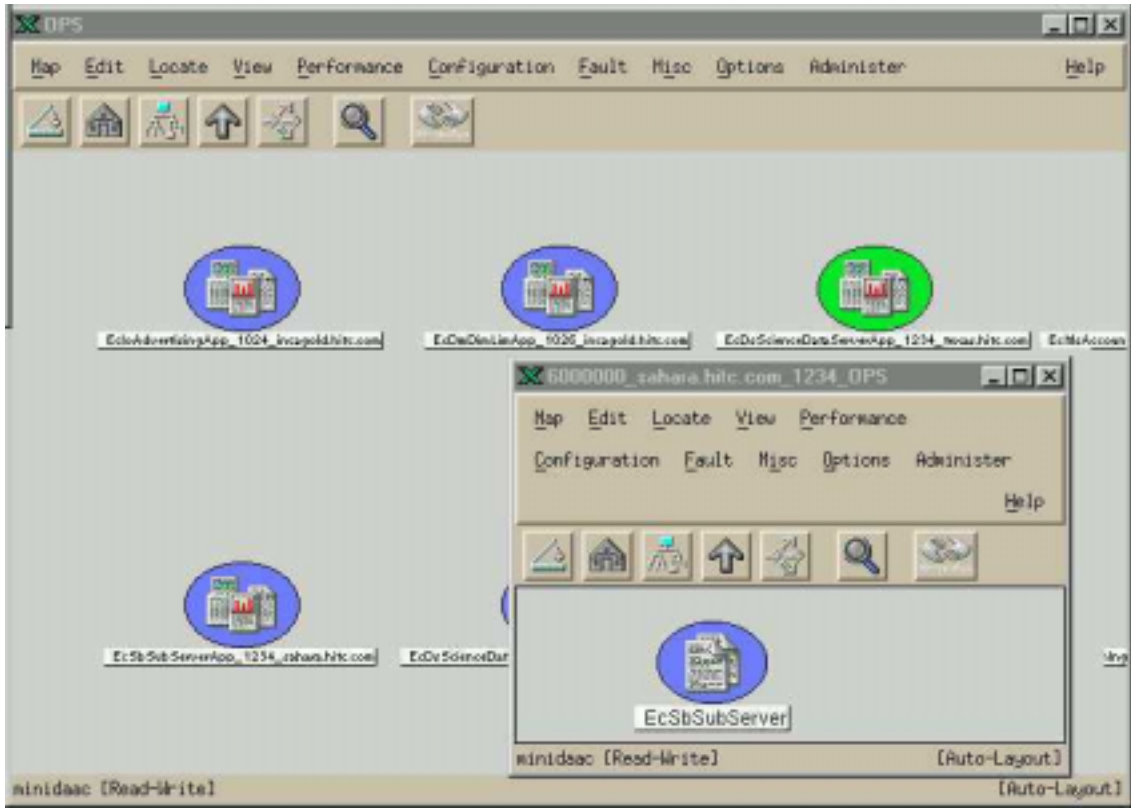


OPS Mode Submap Window

HPOV: System/Server Checks (Cont.)

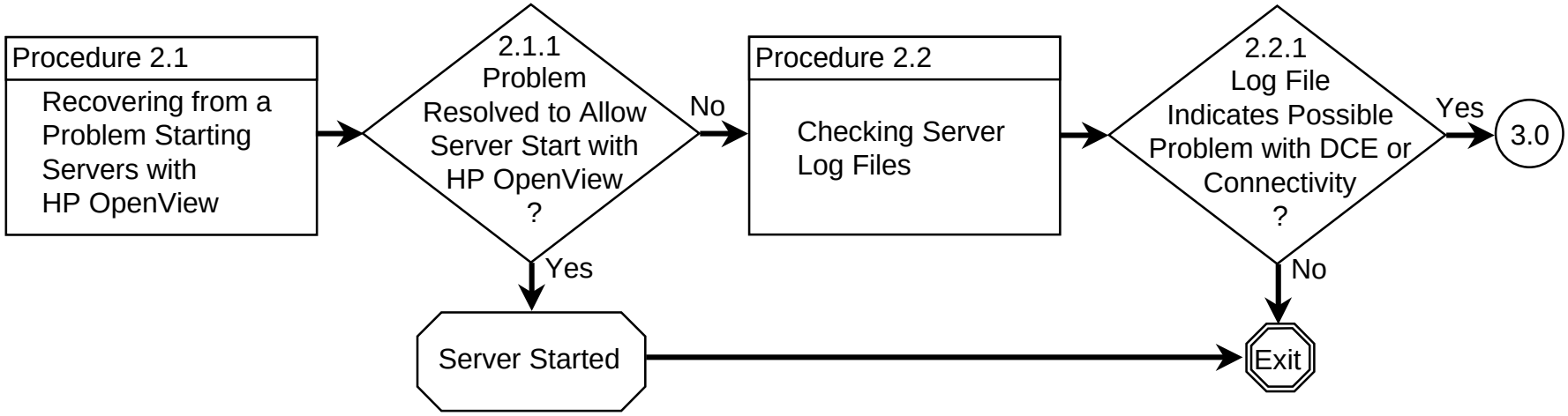


Zoom View, OPS Mode Submap Window



Server Status Submap Window

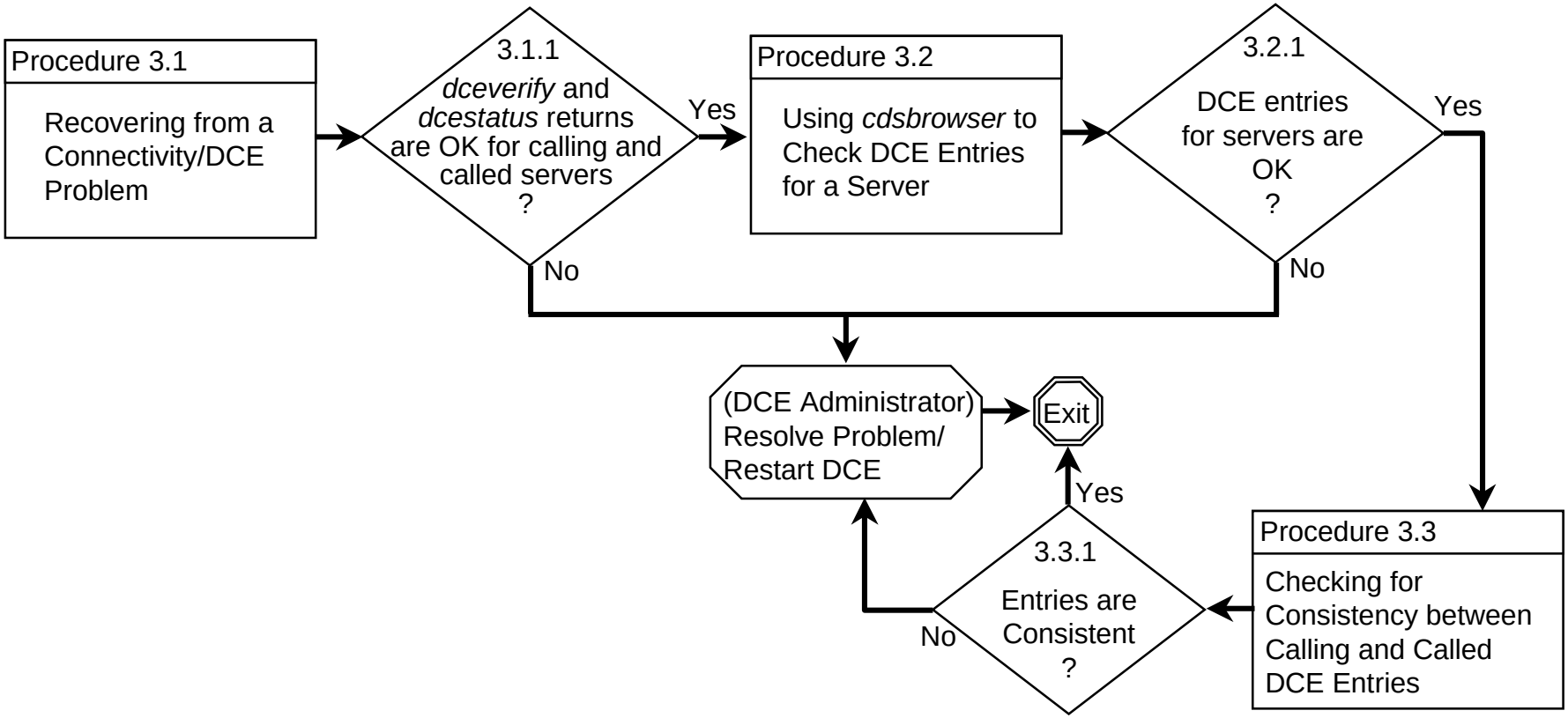
2.0: Server Starting Problems



Problem Starting Server with HPOV

- **Requirements for using HPOV to start a server:**
  - **EcMsAgDeputy (Deputy Agent, on HPOV host)**
  - **EcMsCmEcsd (Start Daemon, on HPOV host)**
  - **EcMsAgSubAgent (SubAgent, on host for server to be started)**
- **Alternatives if HPOV does not start the server:**
  - **Use ECS Assistant**
  - **Use command line**
- **Log files: Information on possible sources of disruption in communications, server function, and many other potential trouble areas**

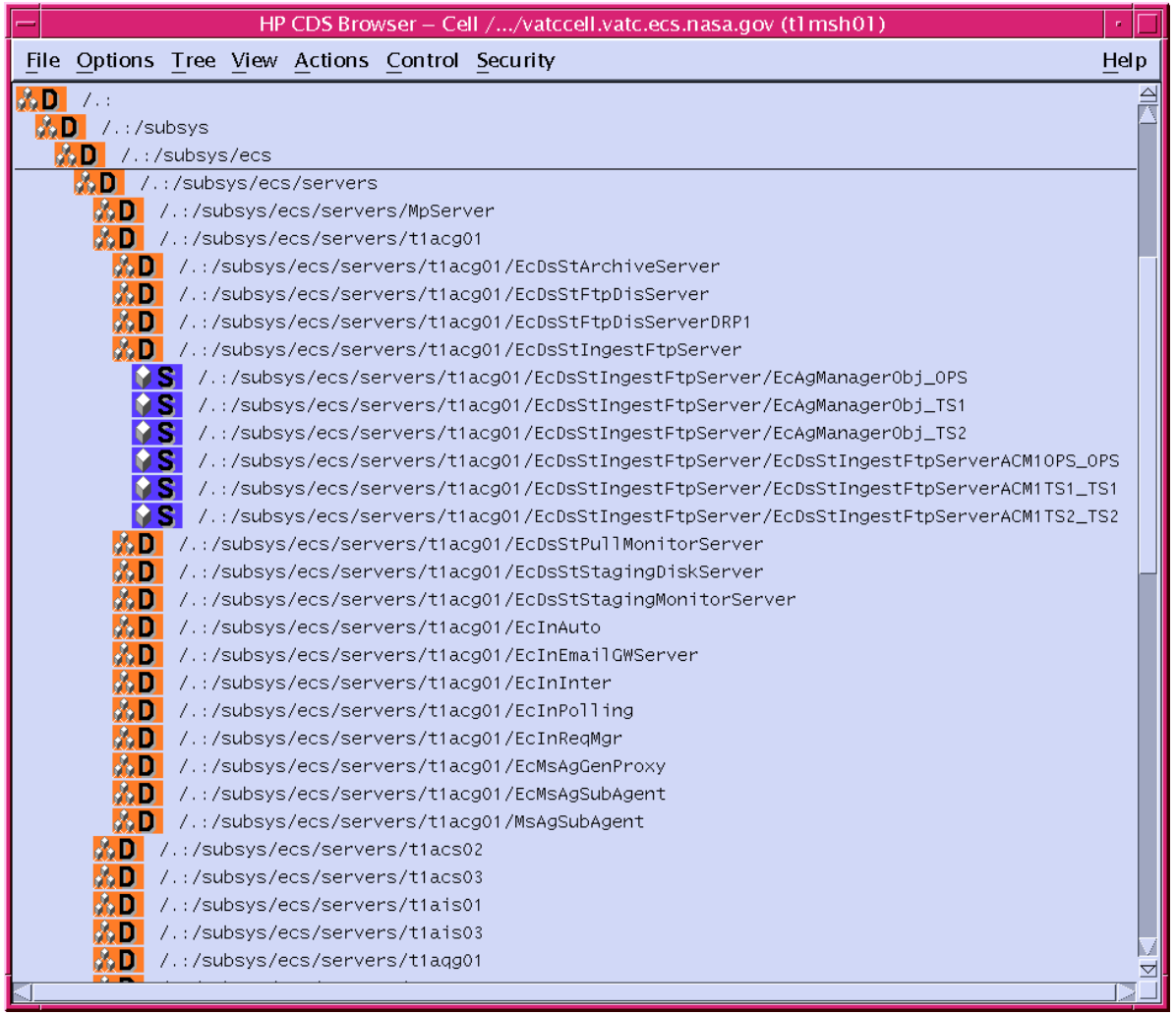
3.0: Connectivity/DCE Problems



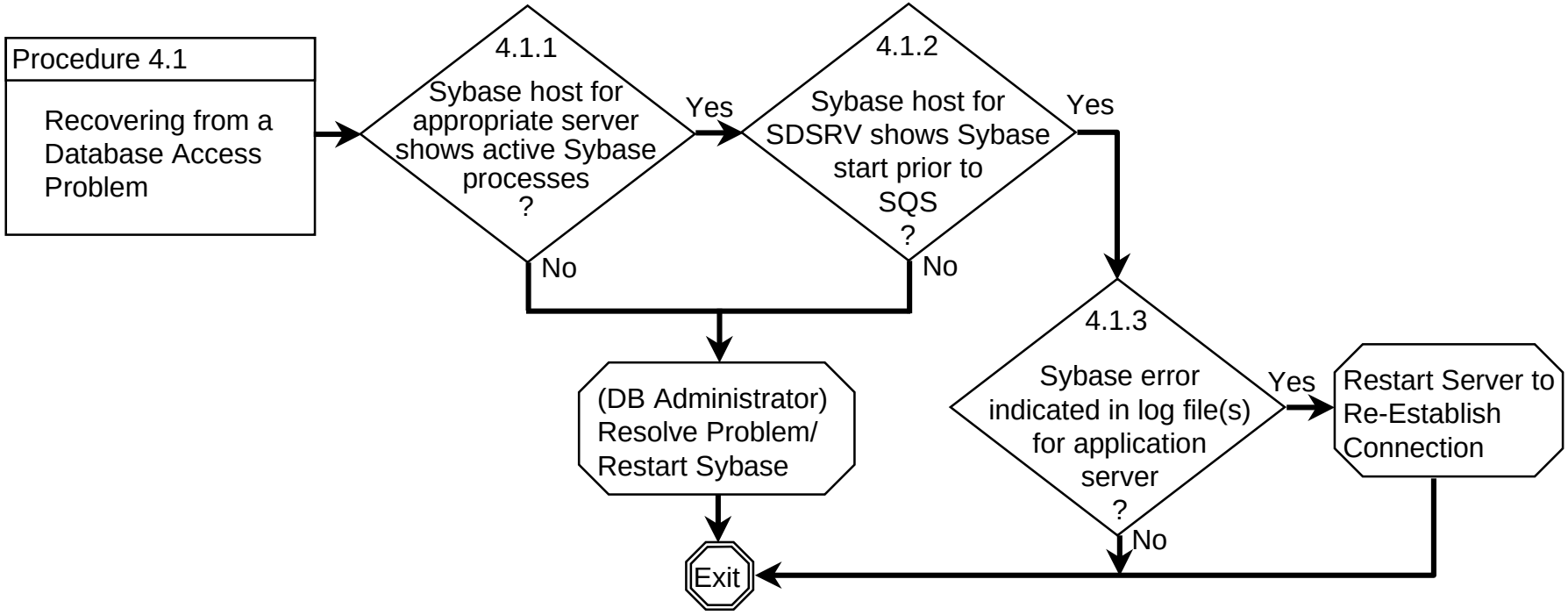
Connectivity/DCE Problems

- **ECS depends on communications in a Distributed Computing Environment (DCE)**
- **Review of server log files may point the way**
  - **Both the called server and the calling server**
- **Ensure servers are up**
- **Ping by name**
- **Run *dceverify* and *dcestatus***
- **Use *cdsbrowser* to check DCE entries for a server**
- **Ensure that the DCE entry being used by the calling server/client matches the DCE entry for the called server**

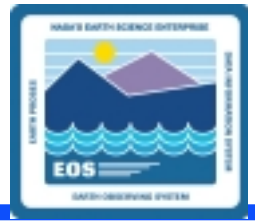
Cdsbrowser Screens



4.0: Database Access Problems

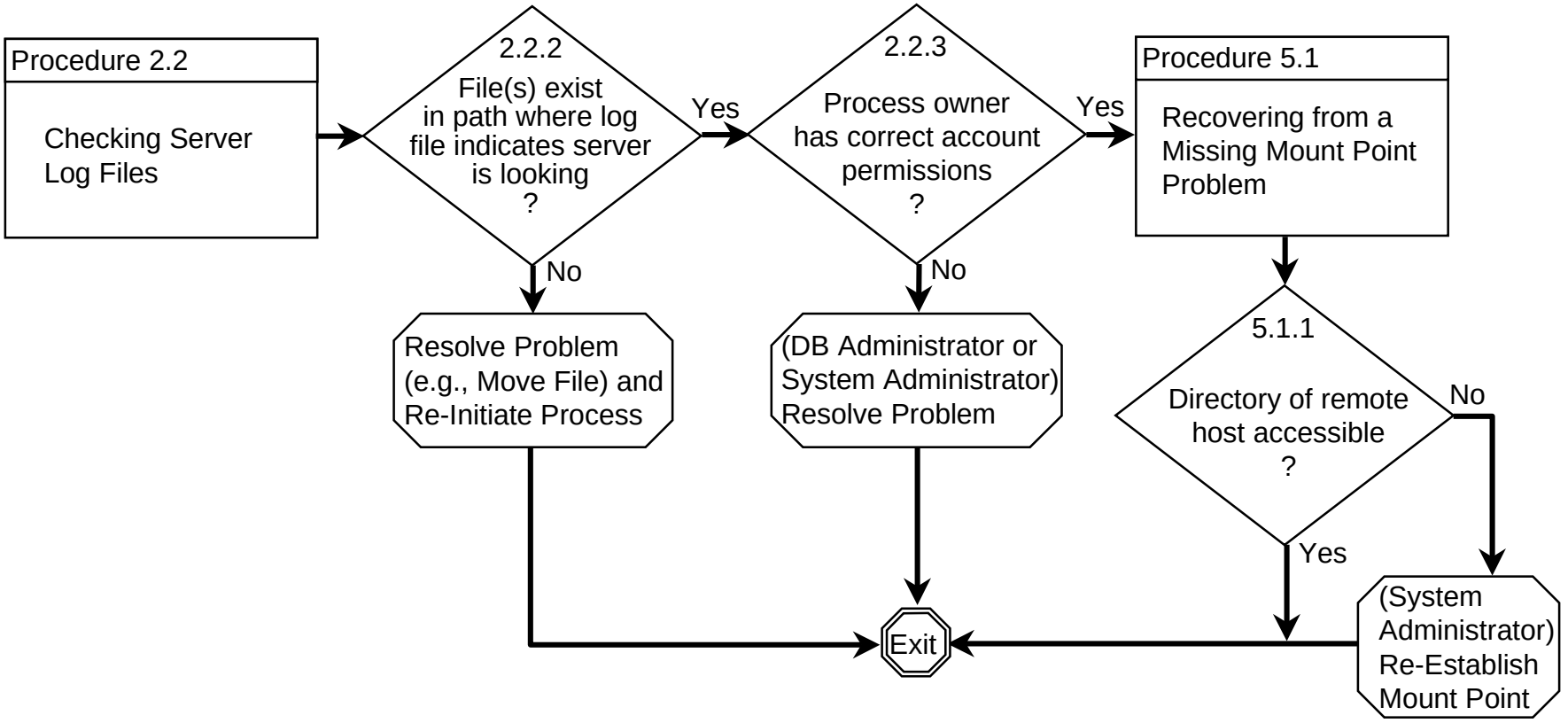


Database Access Problems



- **Most ECS data stores use the Sybase database engine**
- **Sybase hosts listed in Document 920-TD*x*-009 (*x* = E for EDC, = G for GSFC, = L for LaRC, = N for NSIDC)**
- **On Sybase host, *ps -ef* | *grep dataserver* and *ps -ef* | *grep sqs* to check that SQS was started after Sybase dataserver processes (*Note*: This applies only to host for SDSRV database)**
- **On application host, *grep Sybase* <logfilename> to check for Sybase errors**

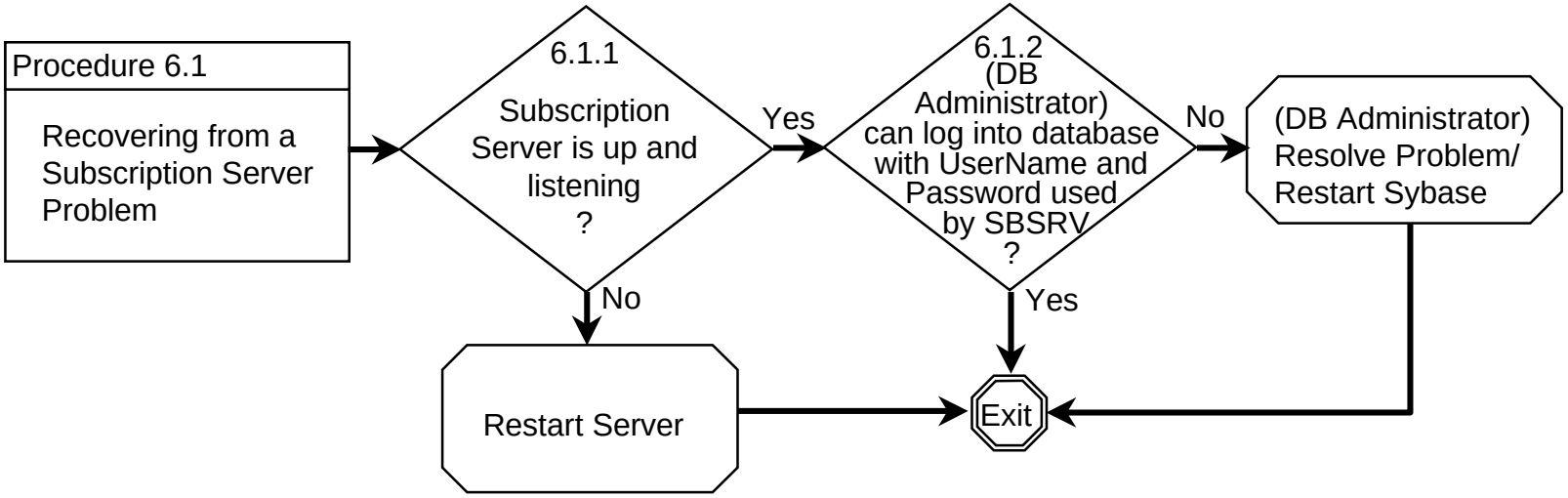
5.0: File Access Problems



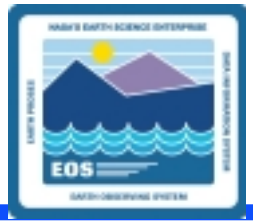
File Access/Mount Point Problems

- ECS depends on remote access to files
- Ensure file is present in path where a client is seeking it
- Ensure correct file permissions
- Check for lost mount point and re-establish if necessary
  - Engineering Technical Directive: *NFS Mount Point Installation/Update Standard Procedure*

6.0: Subscription Problems

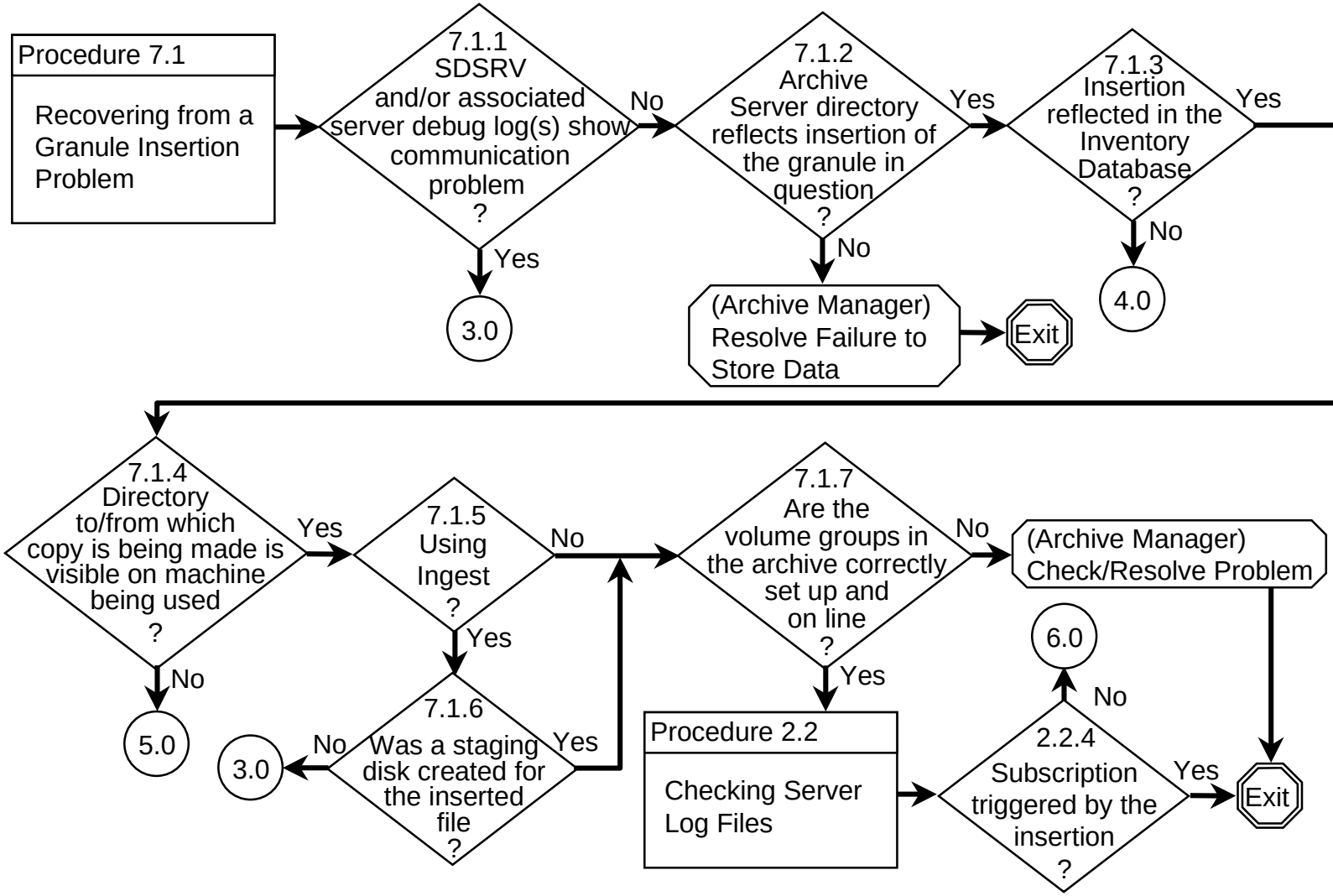


SBSRV Problem



- SBSRV plays key role in many ECS functions
- Ensure SBSRV is up and listening
- Use SBSRV GUI to add a subscription for FTPpush of a small data file
- Have Database Administrator attempt to log in to Sybase (on the SBSRV database host with the appropriate Sybase username and password)

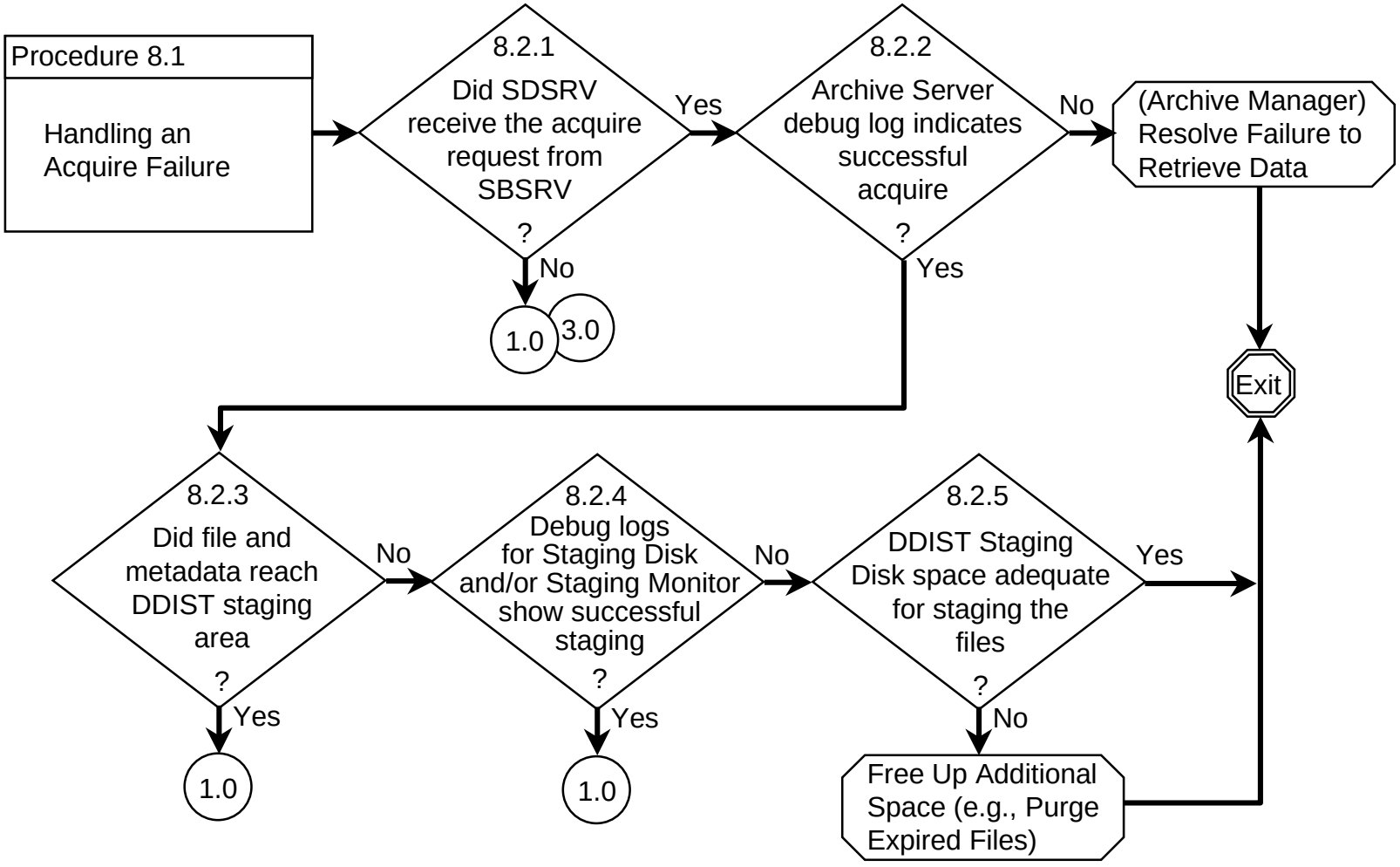
7.0: Granule Insertion Problems



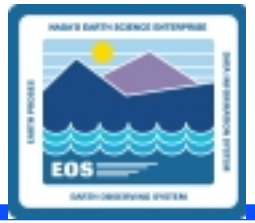
Granule Insertion Problems

- ECS depends on successful archiving functions
- Check SDSRV logs and Archive Server logs for communications errors
- Run Check Archive Script for consistency between Archive and Inventory
- List files in Archive to check for file insertion (/dss_stk1/<*mode*>/<*data_type_directory*>)
- Database Administrator check SDSRV Inventory database for file entry
- Check mount points on Archive and SDSRV hosts
- If dealing with Ingest, check for staging disk in *drp*- or *icl*-mounted staging directory
- Archive Manager check volume group set-up and status
- Check SDSRV and SBSRV logs to ensure that subscription was triggered by the insertion

8.0: Acquire Problems

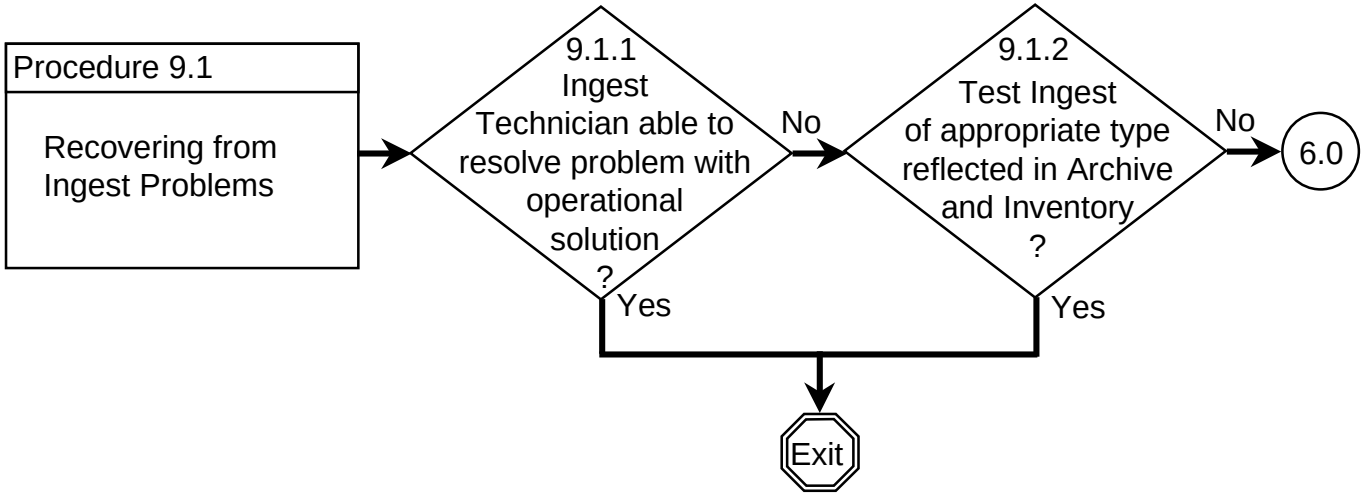


Acquire Problems



- **Functions requiring stored data are dependent on capability to acquire data from the Archive**
- **Check SBSRV log for Acquire request to SDSRV**
- **Check DDIST log for sending of e-mail notification to user**
- **Check for Acquire failure**
  - **Check SDSRV GUI for receipt of Acquire request**
  - **Check SDSRV logs for Acquire activity**
  - **Check Archive Server log for Acquire activity**
  - **Check DDIST staging area for file and metadata**
  - **Check Staging Disk log for Acquire activity errors**
  - **Check space available in the staging area on the DDIST server**

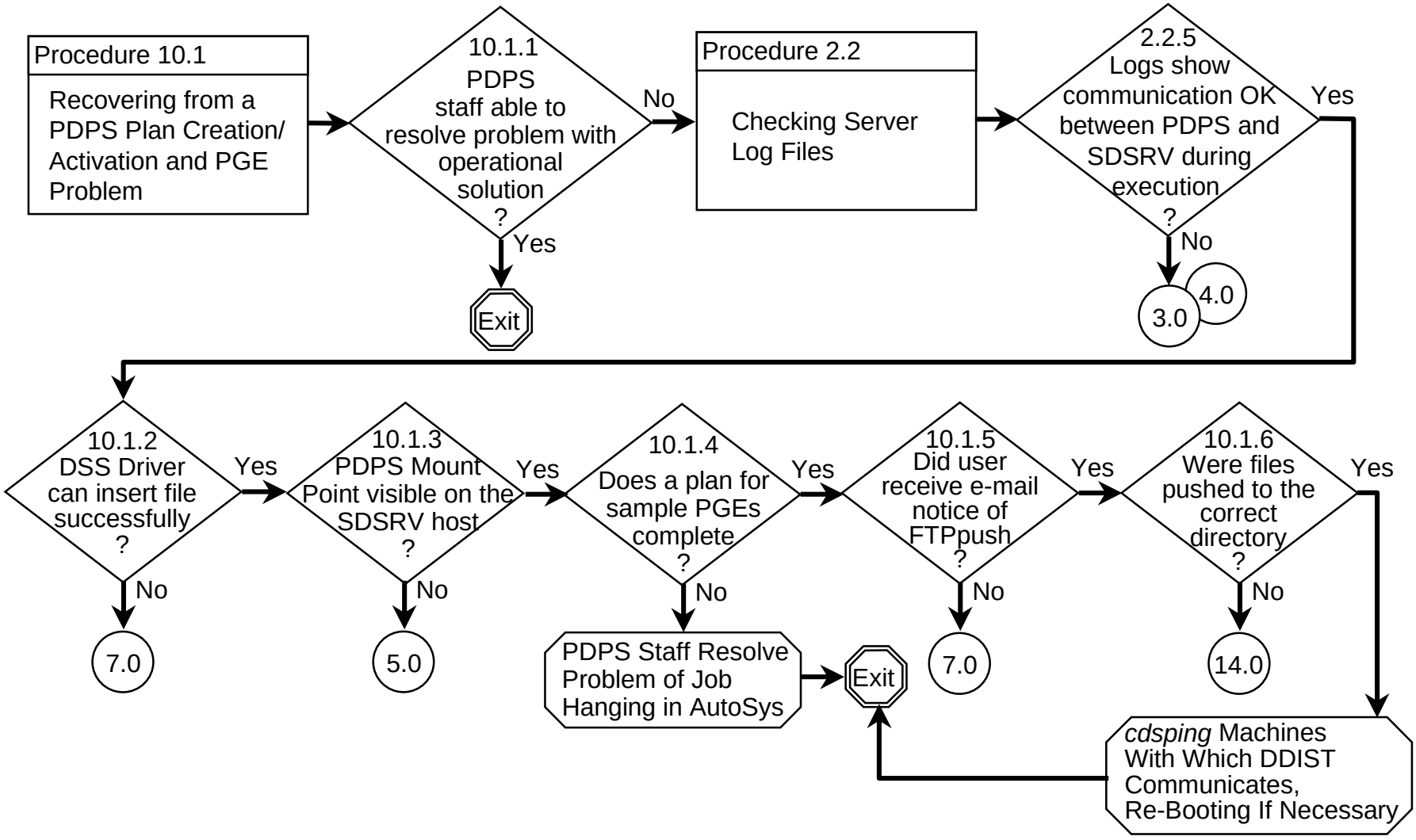
9.0: Ingest Problems



Ingest Problems

- **Ingest problems vary depending on type of Ingest**
- **Ingest GUI should be the starting point; Ingest technician/Archive Manager may resolve many Ingest problems (e.g., Faulty DAN, Threshold problems, disk space problems, FTP error, Ingest processing error)**
- **Have technician perform a test ingest of appropriate type**
  - **Check for granule insertion problems**
  - **Check Archive and Inventory databases for appropriate entries**

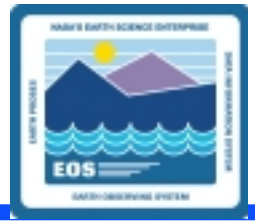
10.0: Planning and Data Processing Problems



PDPS Plan Creation/Activation and PGE Problems

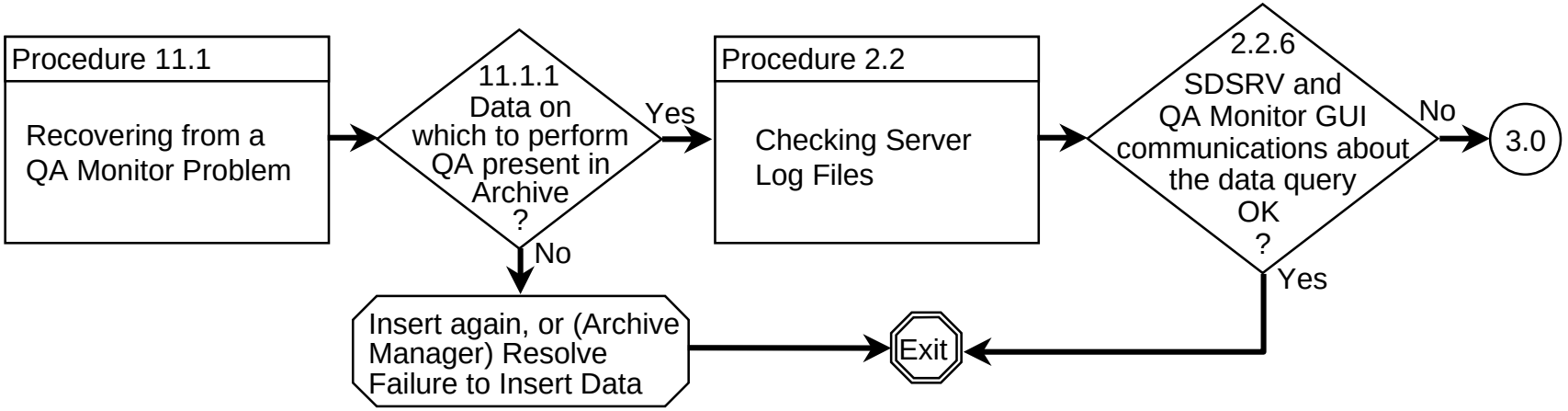
- **Production Planning and Processing depend on registration and functioning of PGEs, and on data insertion and archiving**
- **Initial troubleshooting by PDPS personnel**
- **Check logs for evidence of communications problems between PDPS and SDSRV**
- **Have PDPS check for failed PGE granule; refer problem to SSI&T?**
- **Insert small file and check for granule insertion problems**
- **Check that PDPS mount point is visible on SDSRV and Archive Server hosts**

PDPS Plan Creation/Activation and PGE Problems (Cont.)



- **Have PDPS create and activate a plan for sample PGEs (e.g., ACT and ETS)**
  - **Ensure necessary input and static files are in SDSRV**
  - **Ensure necessary ESDTs are installed**
  - **Ensure there is a subscription for output (e.g., AST_08)**
- **Check for PDPS run-time directories**
- **Determine if the user in the subscription received e-mail concerning the FTPpush**
- **Determine if the files were pushed to the correct directory**
- **Execute *cdsping* of machines with which DDIST communicates from *x*0dis02**

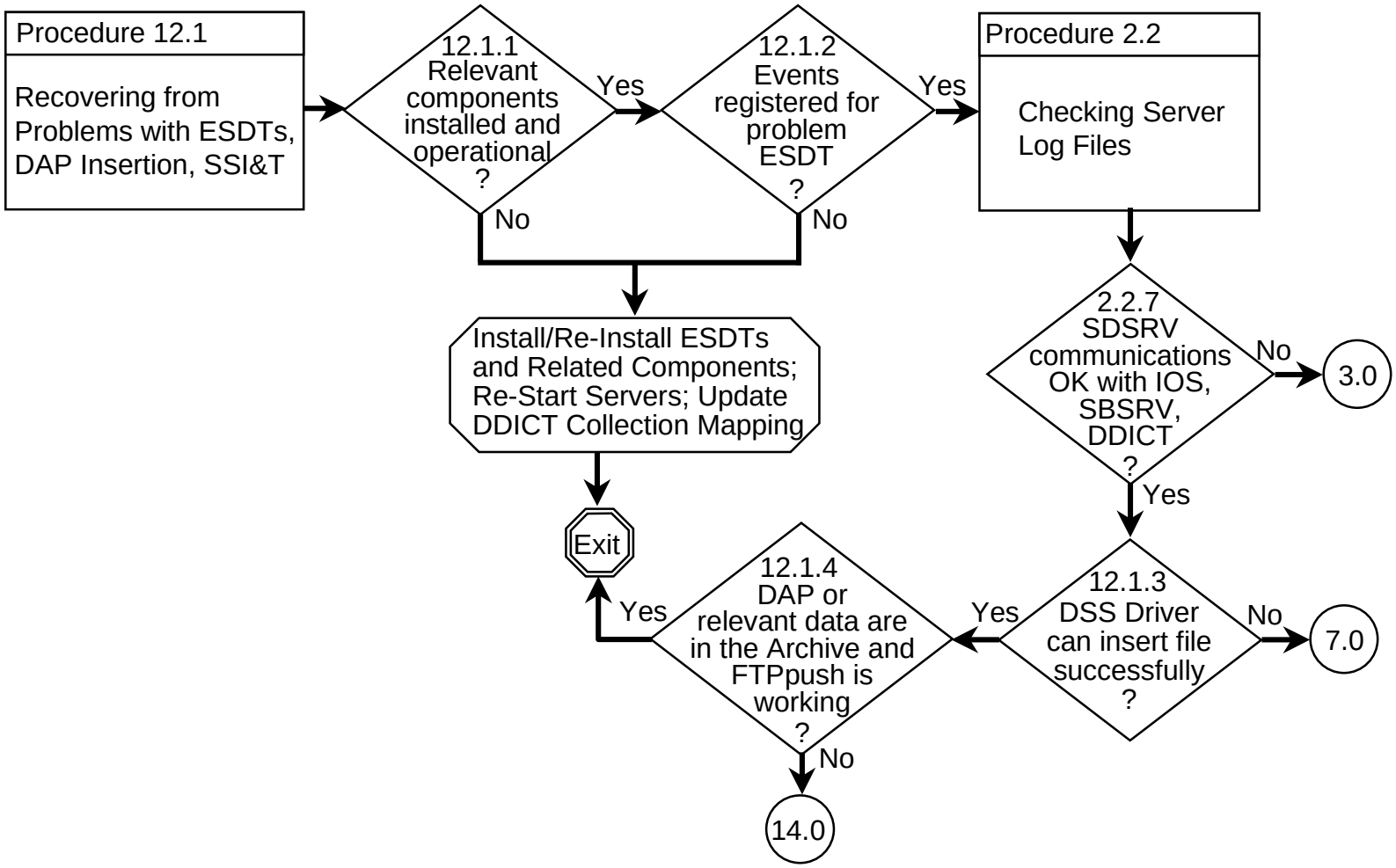
11.0: Quality Assessment Problems



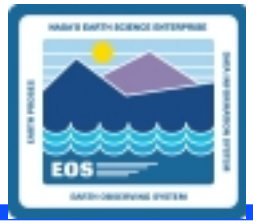
QA Monitor Problems

- QA Monitor GUI is used to record the results of a QA check on a science data product (update QA flag in the metadata)
- Operator may handle error messages identified in Operations Tools Manual (Document 609)
- Check that the data requested are in the Archive
- Check SDSRV logs to ensure that the data query from the QA Monitor was received
- Check QA Monitor GUI log to determine if the query results were returned
  - If not, check SDSRV logs for communications errors

12.0: Problems with ESDTs, DAP Insertion, SSI&T

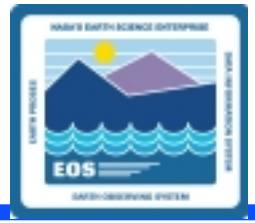


ESDT Problems



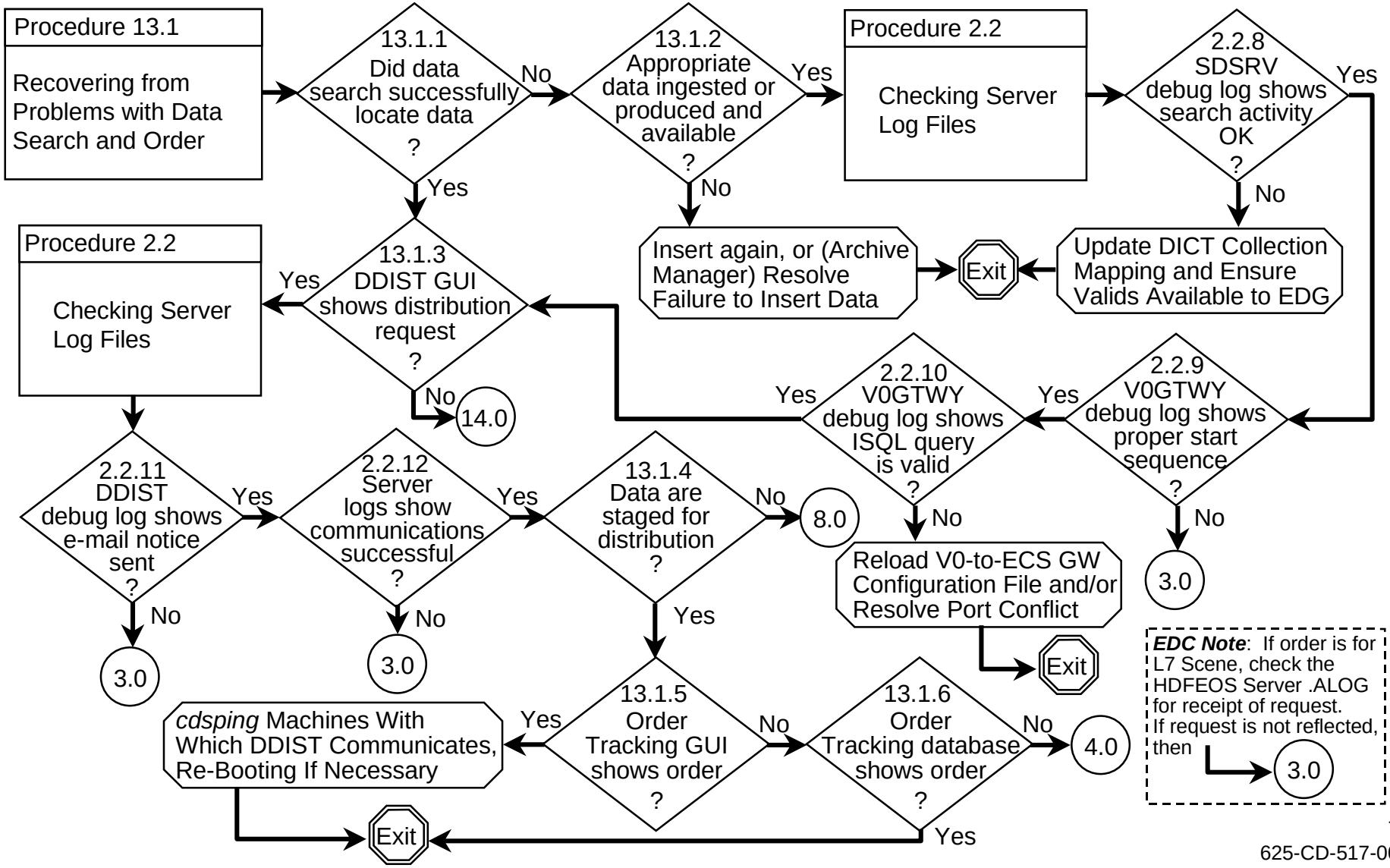
- **Each ECS data collection is described by an ESDT**
  - **Descriptor file has collection-level metadata attributes and values, granule-level metadata attributes (values supplied by PGE at run time), valid values and ranges, list of services**
- **Check SDSRV GUI to ensure ESDT is installed**
- **Check SBSRV GUI to ensure events are registered**
- **Check that IOS and DDICT are installed and up**
- **Check SDSRV GUI for event registration in ESDT Descriptor information**
- **Check log files for errors in communication between SDSRV, IOS, SBSRV, and DDICT**
- **If necessary, perform collection mapping for DDICT**

Problems with DAP Insertion/ Acquire and SSI&T Tools/GUIs



- **Delivered Algorithm Packages (DAPs) are the means to receive new science software**
- **Check that Algorithm Integration and Test Tools (AITTL) are installed**
- **Check that ESDTs are installed**
- **Check for granule insertion problems**
- **Check archive for presence of the DAP**
- **Check for problems with FTPpush distribution**

13.0: Problems with Data Search and Order



Data Search Problems

- **Data Search and Order functions, including V0GTWY/DDICT connectivity, are key to user access**
- **List files in Archive to check for presence of file (/dss_stk1/<*mode*>/<*data_type_directory*>)**
- **Check SDSRV logs for problems with search**
- **Review V0GTWY log to check that V0GTWY is using a valid *isql* query**
- **Ensure compatibility of collection mapping database used by DDICT and the EOS Data Gateway Web Client search tool**
  - **If necessary, perform collection mapping for DDICT (using DDICT Maintenance Tool)**
  - **Contact EOSDIS V0 Information Management System to check status of any recently exported ECS valids**

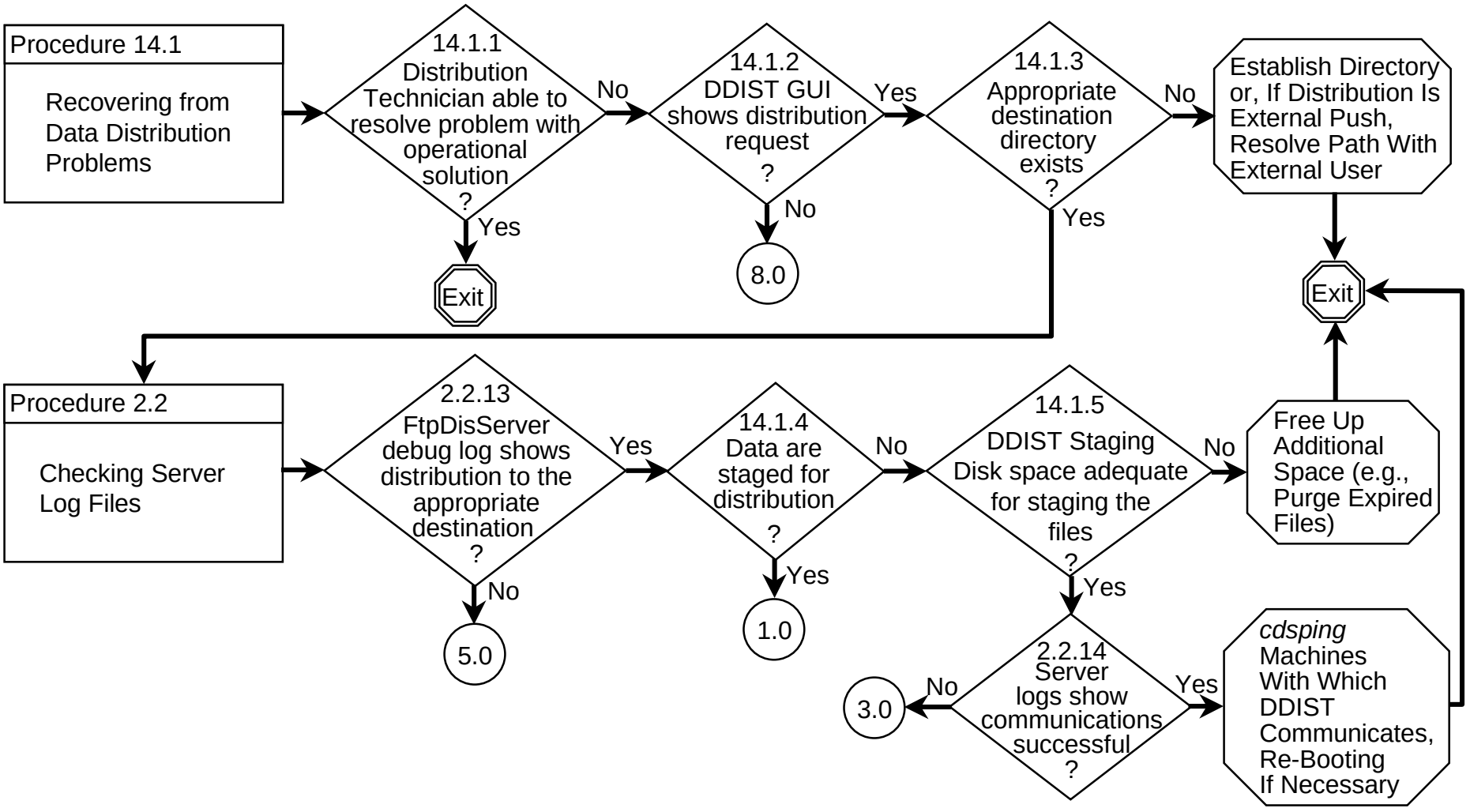
Data Order Problems

- Registered user must be able to order products
- Check for data search problems
- Use DDIST GUI to determine if DDIST is handling a request for the data, and to monitor progress
- Determine if the user received e-mail notification
- Check server logs to determine where the order failed; check SDSRV GUI to determine if SDSRV received the Acquire request from V0GTWY

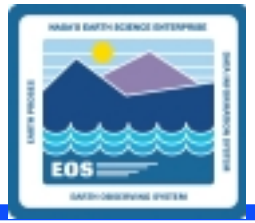
Data Order Problems (Cont.)

- **Check DDIST staging area for presence of data; check staging disk space**
- **Execute *cdsping* of machines with which DDIST communicates from *x*0dis02**
- **Use ECS Order Tracking GUI to check that the order is reflected in MSS Order Tracking; check database**
- **If order is for L7 Scene data, check HDFEOS Server .ALOG to determine if the HDFEOS Server received the request**

14.0: Data Distribution Problems

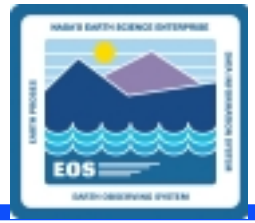


Problems with FTPpush Distribution



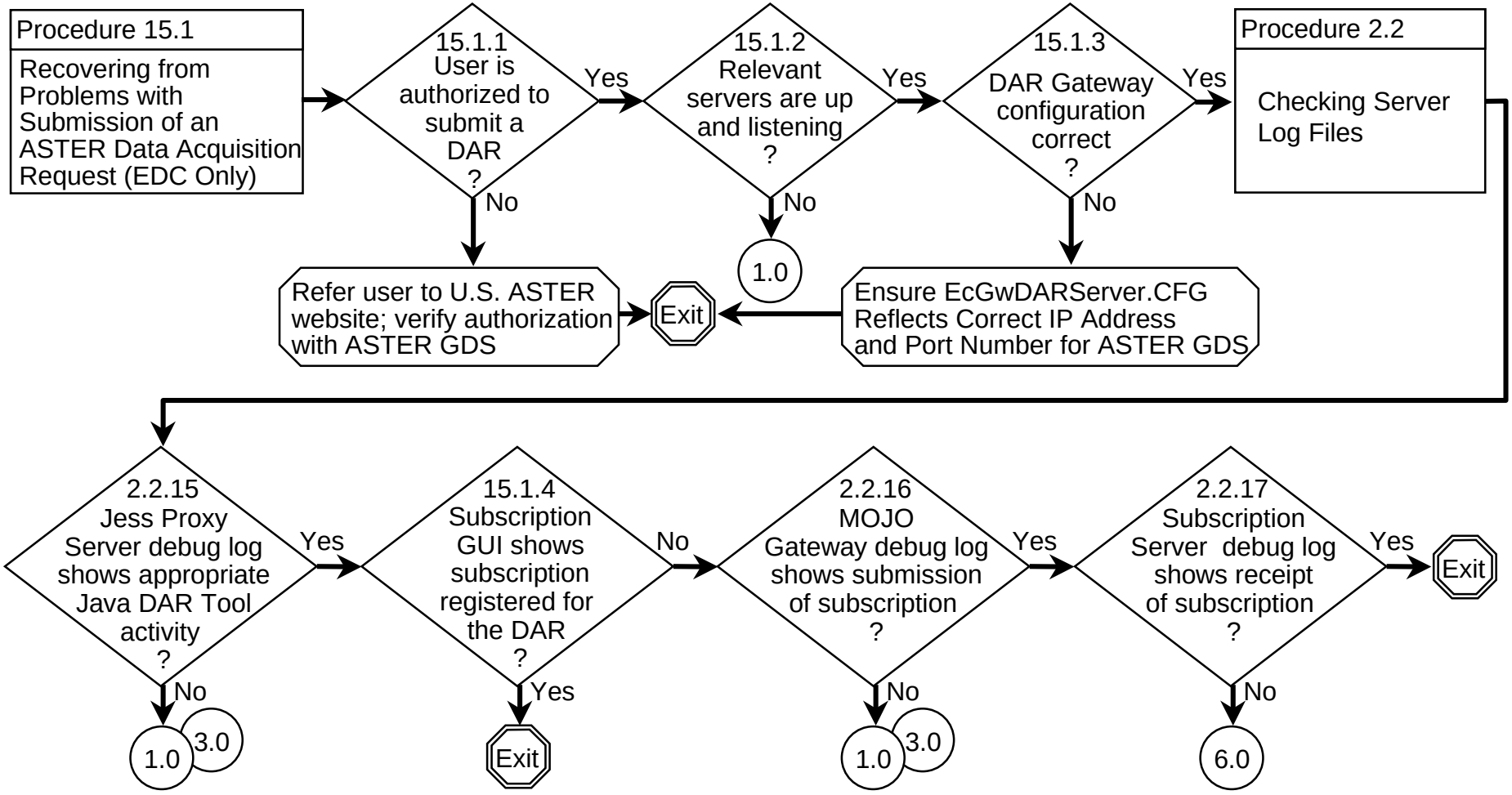
- FTPpush process is central to many ECS functions
- Use DDIST GUI to determine if DDIST is handling a request for the data, and to monitor progress
- Check server logs (FtpDis, DDIST) to ensure file was pushed to correct directory
- Check that the directory exists
- Check FtpDis logs for permission problems
- Check for Archive Server staging of file; check staging disk space
- Check server logs to find where communication broke down

Problems with FTPpull Distribution



- **FTPpull is key mechanism for data distribution**
- **Use DDIST GUI to determine if DDIST is handling a request for the data, and to monitor progress**
- **Check that the directory to which the files are being pulled exists**
- **Check FtpDis logs for permission problems**
- **Check for Archive Server staging of file**
- **Check server logs to find where communication broke down**
- **Execute *cdsping* of machines with which DDIST communicates from *x*0dis02**

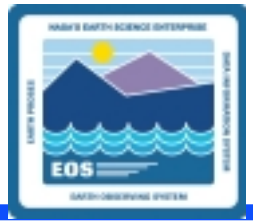
15.0: Problems with Submission of a Data Acquisition Request (EDC Only)



Problems with DAR Submission

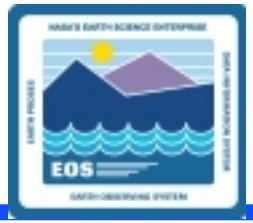
- **EDC supports the Java DAR Tool to enable authorized users to submit ASTER Data Acquisition Requests to the ASTER GDS**
- **Check for accounts**
  - **Registered user with DAR permissions**
  - **Account established at ASTER GDS**
- **Check that servers are up and listening**
  - **EcMsAcRegUserSrvr (on e0mss21)**
  - **EcGwDARServer (on e0ins01)**
  - **EcSbSubSrvr (on e0ins01)**
  - **EcCsMojoGateway (on e0ins01)**
  - **EcClWbJessProxy (on e0ins02)**
  - **EcClWbFoliodProxyServer (on e0ins02)**
  - **EcIoAdServer (on e0ins02)**

DAR Submission Problems (Cont.)



- **Check EcGwDARServer.CFG for correct IP address and port**
- **Examine server log files**
  - **Ongoing activity indicates servers are functioning**
  - **Check at time of problem for evidence of communications breakdown or other problems**
- **Determine if subscription worked**
  - **Mojo Gateway debug log should reflect submission of subscription**
  - **Subscription Server debug log should reflect receipt of subscription**

Trouble Ticket (TT)

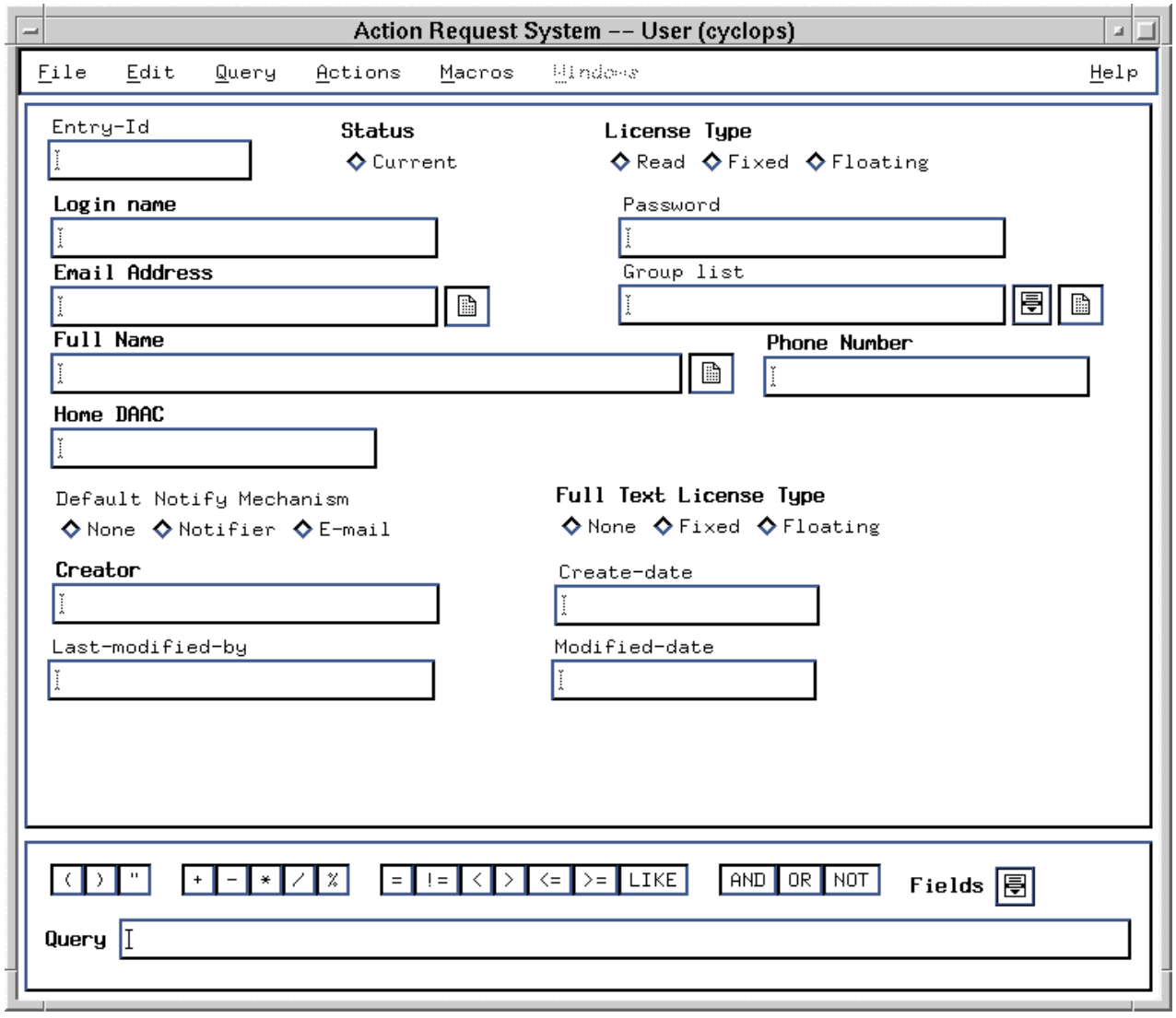


- Documentation of system problems
- COTS Software (Remedy)
- Documentation of changes
- Failure Resolution Process
- Emergency fixes
- Configuration changes → CCR

Using Remedy

- Creating and viewing Trouble Tickets
- Adding users to Remedy — TT Administrator
- Controlling and changing privileges in Remedy — TT Administrator
- Modifying Remedy's configuration — TT Administrator, upon approval by Configuration Management Administrator
- Generating Trouble Ticket reports — System Administrator, others

Remedy RelB-User Schema Screen



Adding Users to Remedy

- Status
- License Type
- Login Name
- Password
- Email Address
- Group List
- Full Name
- Phone Number
- Home DAAC
- Default Notify Mechanism
- Full Text License
- Creator

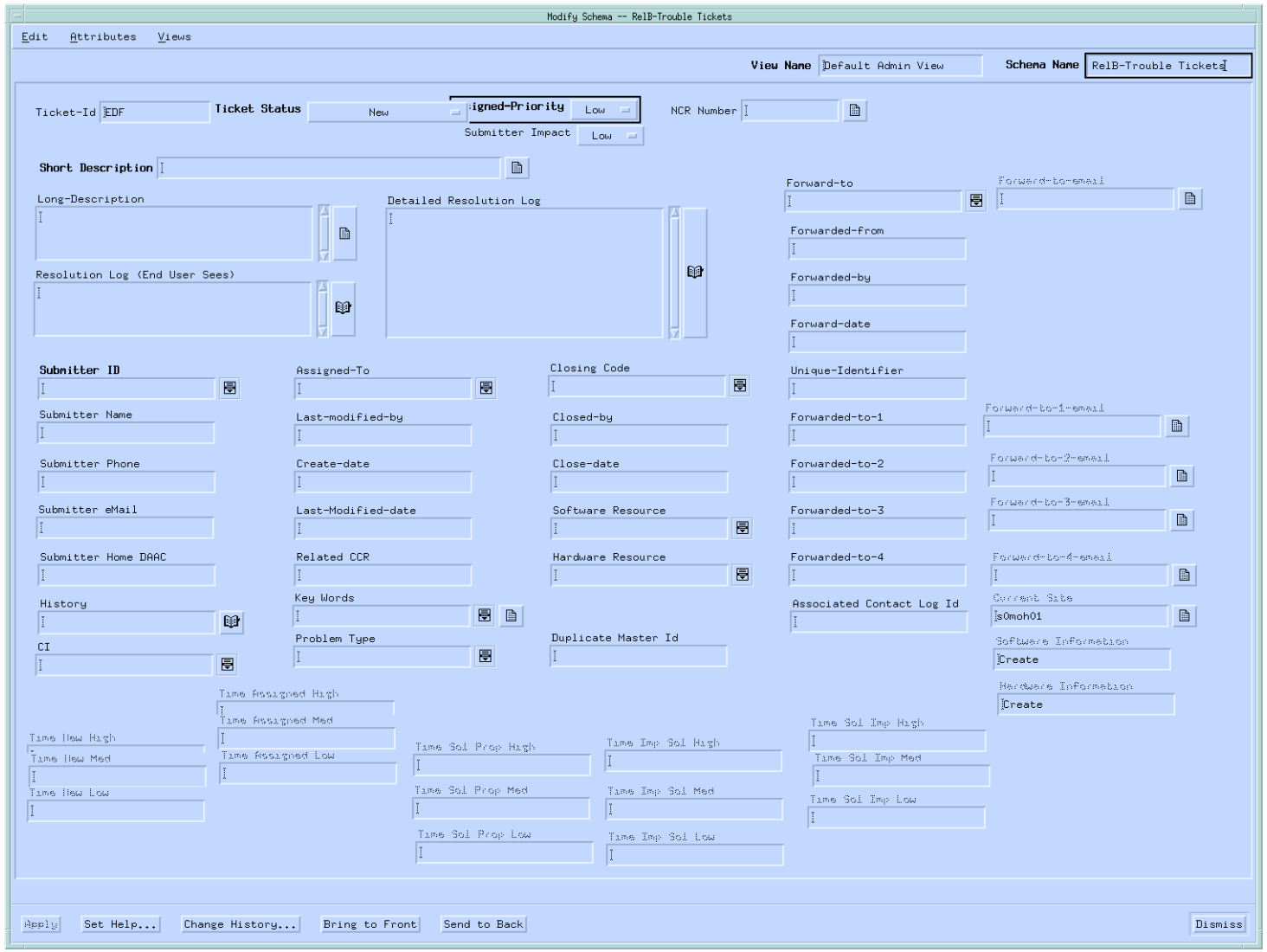
Changing Privileges in Remedy

- **Access privileges (for fields)**
  - **View**
  - **Change**
- **Privilege change methods**
  - **Change group assignment**
  - **Change privileges of a group**
    - **Use Admin tool to define group access for schemas (Remedy databases)**

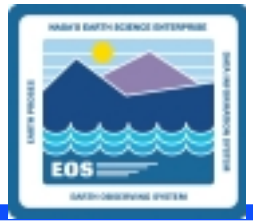
Remedy Admin Tool - Schema List

Remedy Admin - Group Access

Remedy Admin - Modify Schema

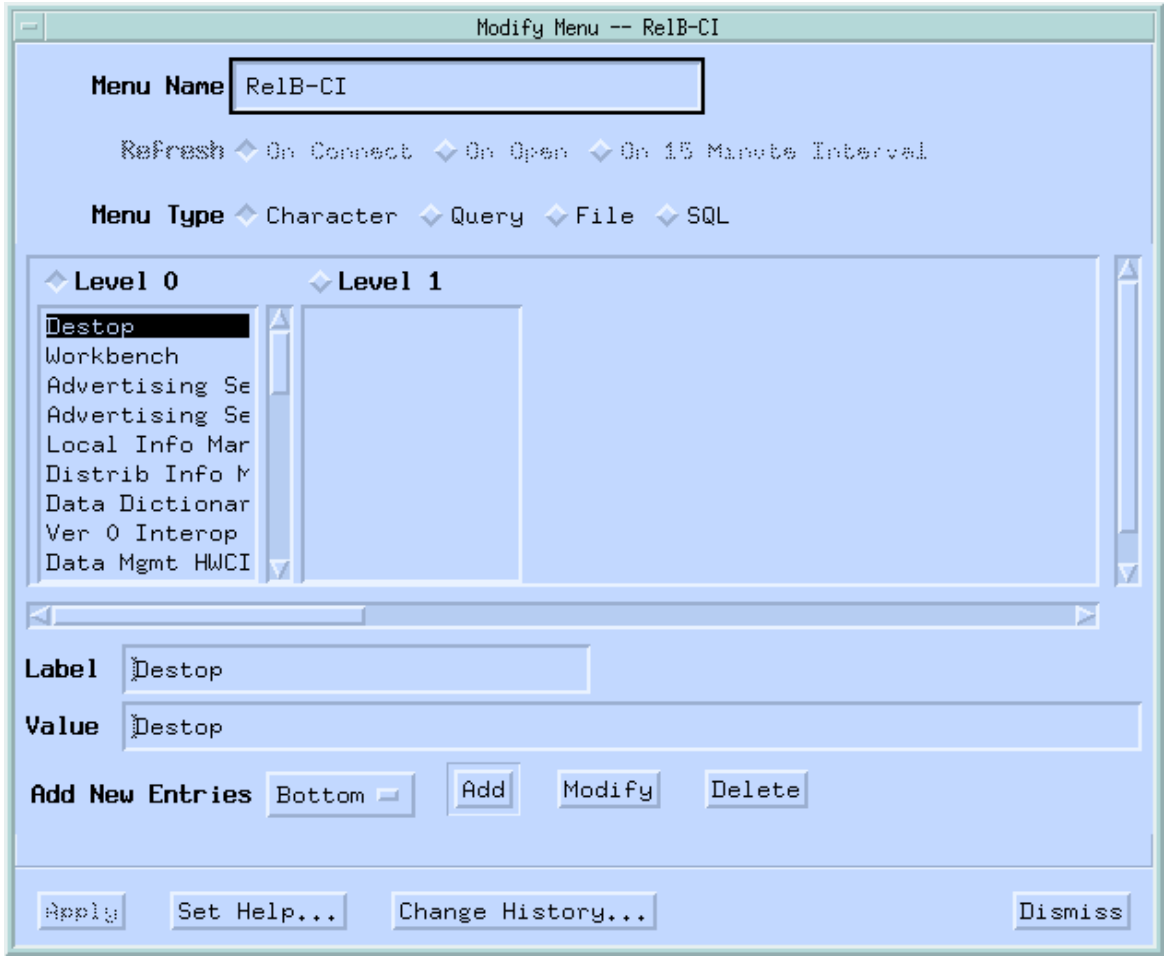


Changing Remedy Configuration



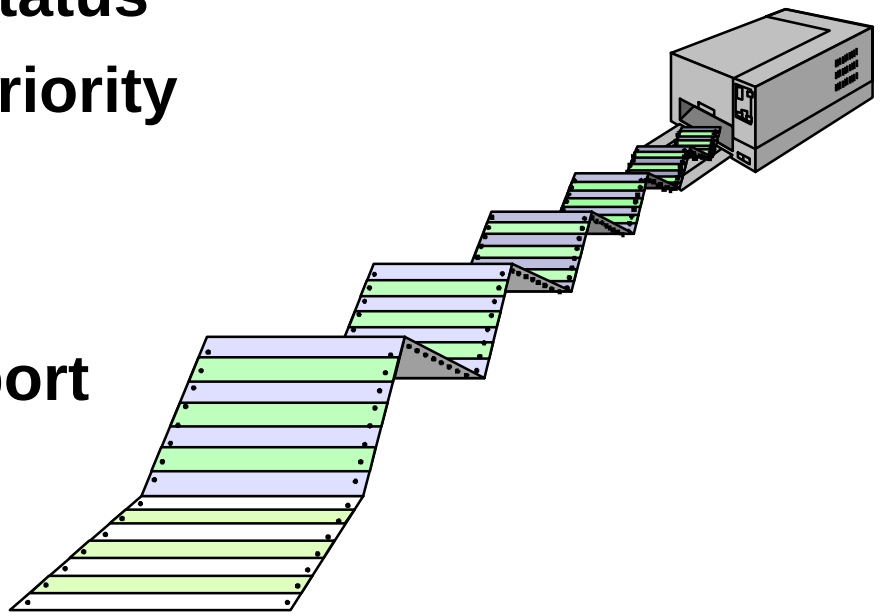
- **User Contact Log, Category**
- **User Contact Log, Contact Method**
- **Configuration Item (CI)**

Remedy Admin - Modify Menu

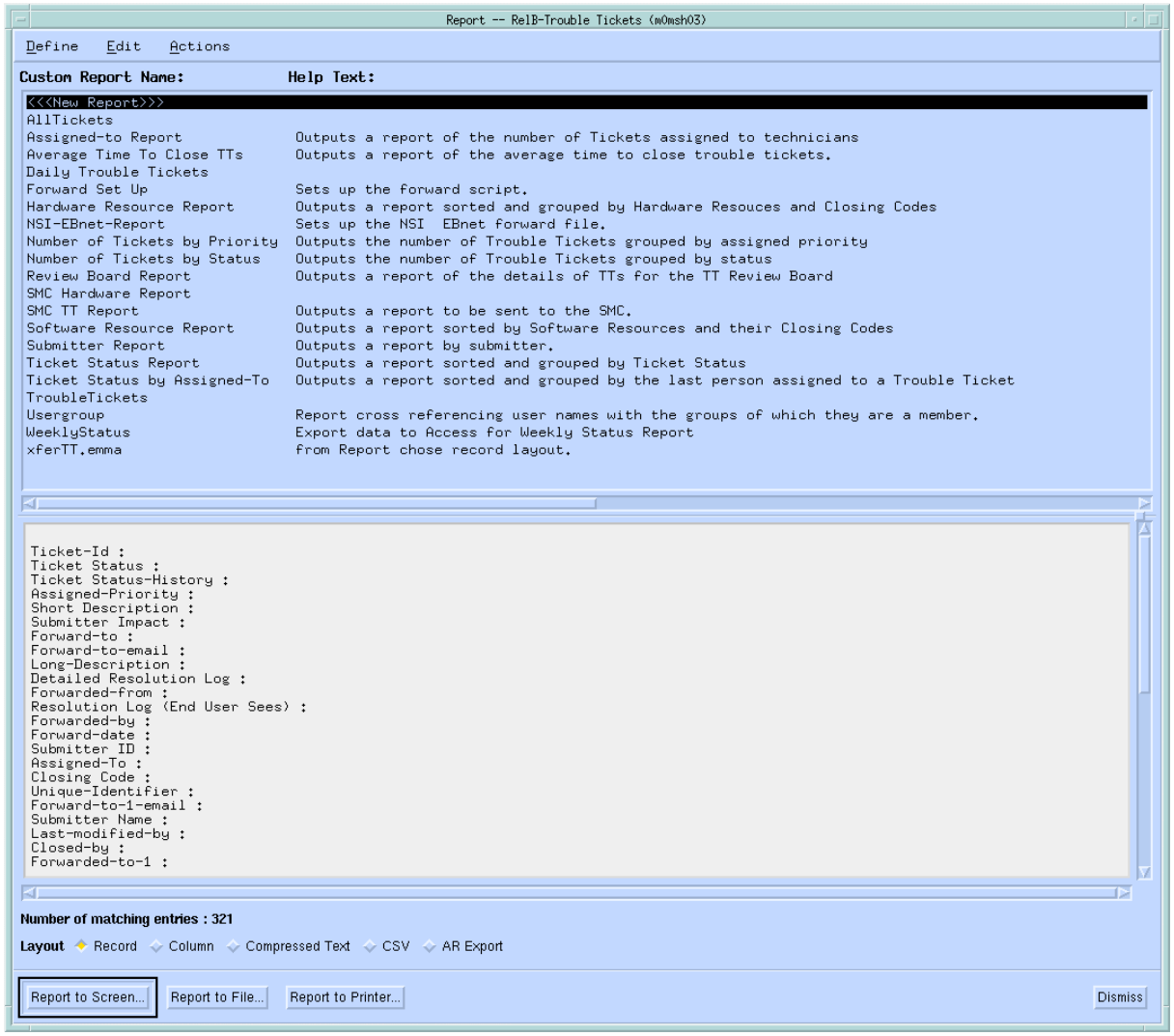


Generating Trouble Ticket Reports

- Assigned-to Report
- Average Time to Close TTs
- Hardware Resource Report
- Number of Tickets by Status
- Number of Tickets by Priority
- Review Board Report
- SMC TT Report
- Software Resource Report
- Submitter Report
- Ticket Status Report
- Ticket Status by Assigned-to



Remedy Admin - Reports



Operational Work-around

- **Managed by the ECS Operations Coordinator at each center**
- **Master list of work-arounds and associated trouble tickets and configuration change requests (CCRs) kept in either hard-copy or soft-copy form for the operations staff**
- **Hard-copy and soft-copy procedure documents are “red-lined” for use by the operations staff**
- **Work-arounds affecting multiple sites are coordinated by the ECS organizations and monitored by ECS M&O Office staff**